

AUTOMOBILES
TECHNOLOGY DEPARTMENT

First Copy INDEX

THE MOTOR AGE

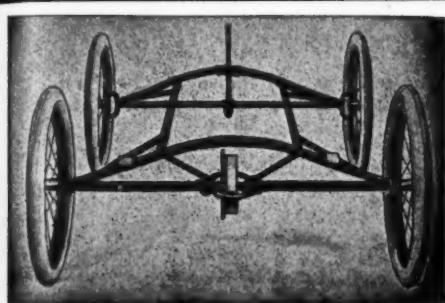
THE AUTOMOBILE AUTHORITY.

Entered at Chicago Post Office as Second-Class Matter. Published every Thursday by the Cycle Age Co., 324 Dearborn Street, Chicago. Eastern Office, 150 Nassau Street, New York.
Subscription—Domestic, \$2.00; Foreign, \$4.00.

Price 5 Cents

CHICAGO OCT. 10, 1901

Vol. V. No. 5



GEARS...

We are prepared to furnish gears complete on short notice; also frame fittings rough or machined, and solicit quantity orders. Material and workmanship of the highest order.

THE CONRAD MOTOR CARRIAGE CO.

1413-1417 Niagara St., BUFFALO, N.Y.

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FROM THE CHICAGO
AUTOMOBILE EXHIBIT

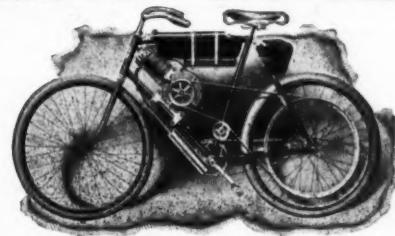
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"The Milwaukee" has an air pump working on the cross-head of the engine. It maintains the required air pressure at all times, and unless you are anxious to work up your muscle with a hand pump, you will before buying any other steam carriage, inquire about this, of the

MILWAUKEE AUTOMOBILE CO.

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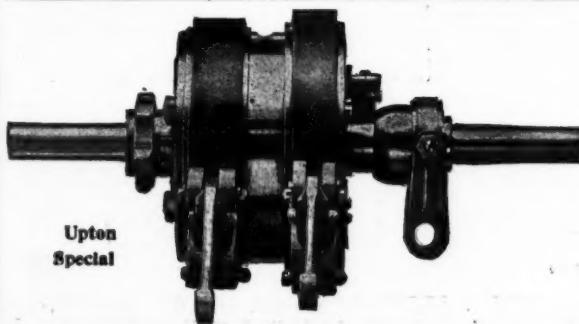
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\$200

The same price you would have to pay for many inferior makes. Every Mitchell Motor Bicycle is thoroughly tested before it leaves our factory, therefore we have no hesitation in guaranteeing them. A motor bicycle without a guarantee is a good wheel to keep away from. Get our catalogue.

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Transmission Gear

TWO SPEEDS, FORWARD AND
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IT WILL CONTAIN:

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Stearns

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New York to Rochester, 394.3 miles in 32 hours and 21 minutes.

2nd. prize class B. hill-climbing. Nelson Hill, 4 minutes and 2 seconds. Any one of our vehicles will do the same performance if not better.

Model A. Runabout -	\$ 800
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Immediate Delivery. Agents Wanted. Regular Equipment, Low Water Alarm, Feed Water Regulator. Fire Controlled from the Seat. Air Pump on Engine, Engine Encased, Runs in Oil, Gasoline Generator, Pilot Light, Double Action Brake.



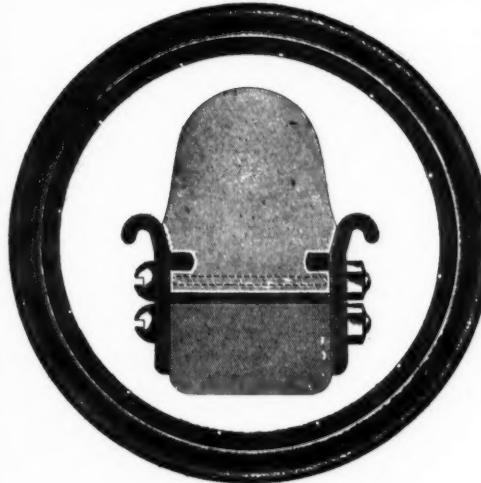
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Stearns

STEAM CARRIAGE COMPANY
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ADVERTISEMENTS.

DON'T BUTT YOUR LUCK



Up against the Butt-End Tire problem.
The

Wheeler Endless

Solid rubber clincher tires save labor,
trouble and obviate all the ills consequent
to the use of the old style kind.

Write for the rest
of the story.....

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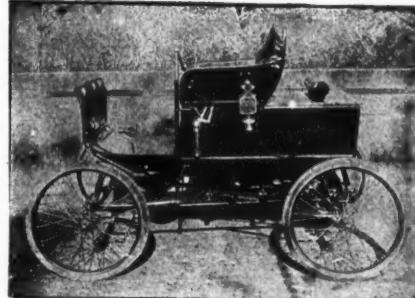
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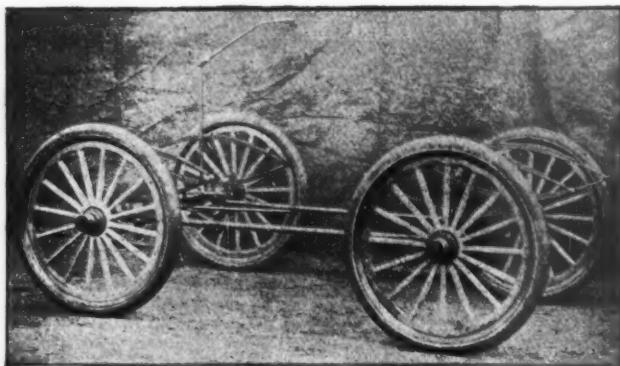
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STEAM VEHICLE CO. OF AMERICA

253 Broadway
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Agent for Great Britain: John L.
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Get a running gear that is past the experimental stage and build a SUCCESSFUL AUTOMOBILE

We make two styles complete with springs and wood wheels, solid rubber or pneumatic tires.

OUR SPRING BLOCK BEARING IS SELF-ADJUSTING

and you ought to have it. It is made for revolving axles and is pivoted between the bearing and spring block, enabling the bearing to move free and easy with the axle always. Our catalogue tells all about it.

The Brecht Automobile Co. 1201 Cass Avenue, St. Louis, Mo.

JOHN R. KEIM

Engines

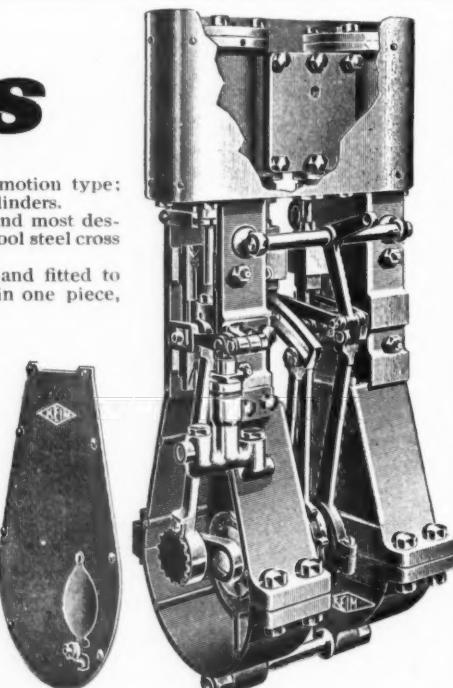
Cylinders $2\frac{1}{2} \times 3\frac{1}{2}$ inches; slide valve link motion type; steam chest in one piece with and between cylinders.

All parts and connections of latest design and most desirable material. Phosphor bronze slides and tool steel cross head.

Connecting rod of machine steel forging and fitted to crank with roller ball bearings. Crank shaft in one piece, supported by two roller ball bearings.

Automobile Supplies

Estimates promptly given on special forgings, sheet steel, brass or copper stamping work, machine screw products, exclusive shapes in air and gasoline tanks made for standard or special shaped bodies, castings for engine frames and cylinders, any and all shapes in springs, steel frames for interior of bodies supporting same, and the mechanism. Workmanship and material guaranteed against defects.



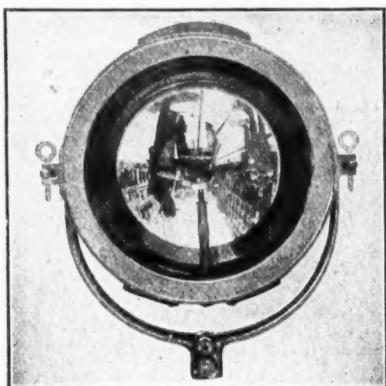
JOHN R. KEIM

Buffalo, - - - - New York

ADVERTISEMENTS.

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RUSHMORE AUTOMOBILE SEARCH LIGHT



has a lens mirror. You don't have to clean it every time you light up. Turn this up side down and see how perfect it is.

THE ADAMS-MCMURTRY COMPANY,
114 Fifth Ave. and 7 East 28th St. NEW YORK CITY

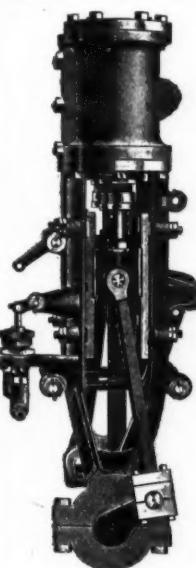
"THE Locke Improved" NO. 1 Engine

(4½ H. P.)

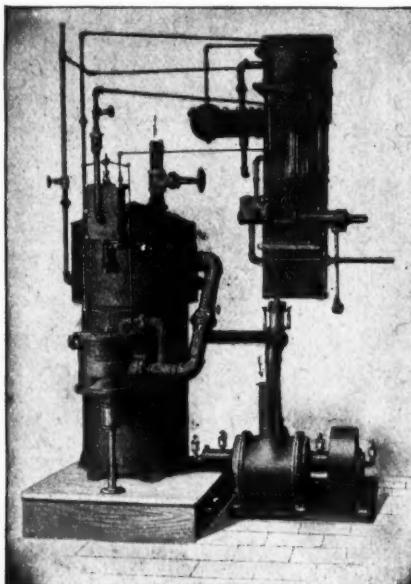
MECHANISM SIMPLE AND
SERVICEABLE

Each engine supplied with heavy asbestos cylinder jackets.

Engines carried in stock. Can be shipped on receipt of order.



LOCKE REGULATOR CO.
SALEM, MASS.



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AUTOMATIC GAS
GENERATING APPARATUS

FOR AUTOMOBILE FACTORIES

Any Capacity
Great or Small

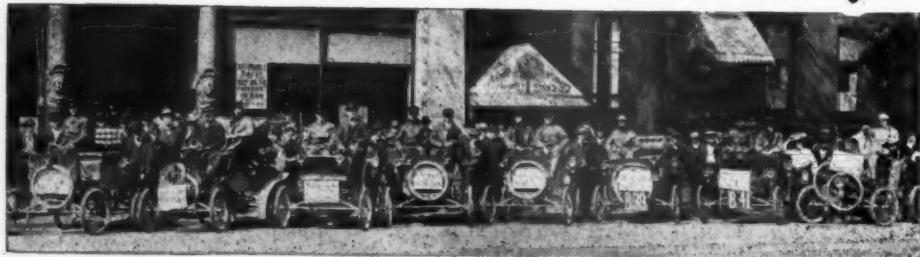
In use in steam laundries with small requirements and packing houses using 300 gallons of gasoline daily.

Gas of required density without use
of supplementary air blast.
No condensation.
Vaporizes every particle of oil.

We shall be pleased to figure on the requirements of automobile manufacturers.

GEO. D. GARLAND, - 43 S. Clinton St., - CHICAGO, ILL.

Locomobile



(Photograph Taken in Front of Locomobile Branch, Buffalo.)

All Six Locomobile Runabouts Arrived at Buffalo in Good Order

C. Arthur Benjamin, in a 3½ h. p. Locomobile was third at the final control and the first steam carriage to arrive.

Write for information about new and improved Locomobile

THE LOCOMOBILE COMPANY OF AMERICA

7 E. 42nd Street, NEW YORK

CHICAGO BRANCH, 260 WABASH AVENUE

CURRENT NOTES AND COMMENTS

Charles R. Flint, who has long been credited with a desire to control the entire rubber business of the United States, and who is at the head of the United States Rubber Co., is now reported to be engaged in an effort to consolidate all of the big concerns of the country. A report was sent out from Akron, on Saturday, to the effect that the Consolidated, Goodrich, Diamond and many others were included in the deal and the names of the other big concerns of the country were mentioned to show how vast the project would be. August Belmont & Co. are credited with being the financiers of the project. The report admits that all the arrangements have not yet been made, and says that details will not be given out until all the options have been secured. The Goodrich company has so far refused all attempts to draw it into combinations. If the officers have changed their minds in the matter, the news will come in the nature of a surprise to the whole rubber industry. Evidently the matter has not been discussed to any great extent in the trade. The rubber papers seem to have heard nothing about it up to the present.

About the Chicago Show

There were mailed to the trade on Saturday last diagrams and other details of the arrangements for the coming show under the auspices of the Chicago Automobile Club and the National Association of Automobile Manufacturers, to be held at the Coliseum March 1 to 8 next year. The diagram shows a great deal more space than was available last year, both in the main building and through the addition of an annex, the track being larger and a great deal of waste space being thereby avoided.

The first allotment of space is to be made on Nov. 15. After that time such space as may remain will be allotted as soon as applied for. The show is to be opened at 2 o'clock on Saturday, March 1, and after that day, Sunday excepted, will be open from 10 a. m. until 11 p. m.

The track has been retained. It will be

some 200 feet longer than last year. The Chicago Automobile Club will adopt rules for its government and will appoint officials to enforce them. It will be available for the use of exhibitors during the greater part of the day and evening.

The center of the building will be divided on the same general plan as last year but there will be considerably more space. The annex furnishes forty-three spaces with abundant aisle room. The basement will be available for storage, and there will also be a large room suitable for trade meetings, lectures or any other event of the character the management may arrange.

Diagrams and application blanks may be obtained of the manager, S. A. Miles, 324 Dearborn street, Chicago.

Bachelle Organizes a Company

Those who attended the Chicago show last March will doubtless remember the handsome electric stanhope of Mr. Bachelle which was on the track during a great part of the week. Those who met him will also remember Mr. Bachelle himself, for he is a man, once known, to be remembered. At about that time he had in mind the formation of a company to manufacture vehicles. He had not gone deeply into the matter, but was convinced—as were a lot of people before the week ended—that he had a good vehicle and that it would sell readily. Some weeks later friends offered to interest themselves with him, and for 3 or 4 months they have been quietly at work making plans for the organization of a company and the equipment of a factory. A prospectus has been issued, but is not for general circulation. The capital of the Bachelle Automobile Co. will be \$500,000. Attached to the prospectus, as references, are the names of some of the best known financiers in and around Chicago, as, for example, the cashiers of the Corn Exchange National and Illinois Trust and Savings banks and a dozen others of almost equal prominence. All of the stock will be common. We are not advised that a definite location has been se-

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lected. The capacity of the plant, at the outset, is to be one vehicle a day. Mr. Bachelle is going about his business in a quiet, systematic way and has little to say of his enterprise in advance of actual production.

Your Friends and Your Enemies

There may come a time when it will be well for the automobile industry to distinguish between its friends and its enemies. To the latter class belong those newspapers which, without knowledge of the facts, attack manufacturers on the ground that their prices are too high and which encourage the public to expect and demand prices at which it is impossible to make a good vehicle. The ultimate effect of the outcry of such papers will be an attempt by some irresponsible maker to place on the market a machine which will reflect discredit on the whole industry. Under the circumstances the following item, from an editorial in the St. Louis Chronicle, is worth remembering:

"When the automobile maker, like the bicycle maker, divides his price by 4, the public generally will use automobiles, and manufacturers will not be forced to close up their business because of the difficulty of introducing their product. It will not be long before \$200 will be a good price for an automobile. The manufacturer who will first put on the market at a fair price a serviceable (not necessarily fancy) automobile will have more orders than he can fill, and his business will be a highly profitable one."

The New Sport of Kings

The king of Belgium, having bought a 40-horsepower Panhard, one of the French papers proposes the following race: King of Belgium, 40-horsepower Panhard, French; king of England, 12-horsepower Gardner-Serpellet, French; emperor of Germany, 35-horsepower Mercedes, German; king of Italy, 12-horsepower Paphard, French; czar of Russia, 30-horsepower de Dietrich, German; king of Portugal, 12-horsepower Panhard, French.

In the Post-Office Service

Plans for automobile mail collection in Minneapolis are assuming definite shape.

The department has advertised for bids for five circuits and expects to have the new form of service in operation on December 15. The department has selected a time of year when the vehicles will be given the severest test possible and, should they do the work successfully through the severe northern winter, will doubtless be satisfied of their stability under all conditions.

Steam Vehicles at the Coast

New York, Oct. 5.—Orlando E. Stevens, the former cycle racing crack, now in charge of the branch of the Mobile company at San Jose, Cal., called at MOTOR AGE office this afternoon. He came east in the interest of the Mobile Rapid Transit Co., of San Jose, to place an order for eighteen buses for the line. This stage line was organized by Stevens and Col. J. W. Cotton, the Mobile agent at Oakland, Cal., with a capital of \$200,000, some of the wealthy residents being behind the scheme. The line will be equipped with wagonettes of 12½ horsepower, seating from 8 to 12 people, and a 40-horsepower truck for messenger service. Stevens has been promised six buses delivered by Nov. 15.

"San Jose is the greatest district in the country for automobiles," said Mr. Stevens. "We have magnificent macadam roads in all directions, and there is automobiling 12 months in the year. The people are crazy over motor vehicles. I sold twenty-one at our branch. The Locomobile company has a hustling representative in San Francisco, in George Moore, and the Locomobile has a great sale throughout California. W. C. Anderson is the Mobile representative at San Francisco, and is making things hum. Steam vehicles far outnumber gasolines on the Pacific coast. The White Sewing Machine Co. is pushing its vehicles with energy, and is assembling them there, thus saving freight charges.

"Our bus line has booming prospects. We have a contract with the Western Navigation Co. to carry their passengers the 9 miles between Alviso and San Jose. The stage line now carries about 250 daily. We will run a line to Los Yatis, 9 miles, where there is no trolley line. We will also run lines between San Jose and the Lick Observatory, on Mt. Hamilton, 28 miles, whose 7

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per cent grade we easily climb; and also Alum Rock, a popular resort 7 miles distant. Our scheme is regarded as a good business proposition, and we easily raised the money to back it."

American Made Panhards

Hartford, Conn., Oct. 5.—The local plant of the American Bicycle Co. has been asked to figure on 1,000 automobiles. It is reported that they are to be of the same general form as the Panhard, and this fact has given rise to the statement that the recently organized branch of the Panhard concern is about to place a contract for the vehicles which Charron said, before his departure, would be made in this country.

Milwaukee Company's Capital

There is in every large city, a bureau whose business it is to supply the daily papers brief details of the legal proceedings. One day last week the Milwaukee bureau reported that the capital of the Milwaukee Automobile Co. had been increased from \$25,000 to \$35,000. The fact is that the capital of the company is, and always has been, \$100,000. It is probable that the report referred to some other company.

List of Chicago Races

The programme for the meeting of the Chicago Automobile Club, to be held at Washington Park track on Tuesday next, Oct. 15, will be as follows:

- 11:00 a.m.—5 miles, electric stanhopes, not to carry over 44 cells.
- 11:15 a.m.—5 miles, motor bicycles.
- 11:40 a.m.—1 mile, electric runabouts, racing machines excluded.
- 11:50 a.m.—5 miles, motor tricycles, not exceeding 3 horsepower.
- 1:00 p.m.—5 miles, gasoline machines, 1,000 lbs. and under.
- 1:30 p.m.—5 miles, steam vehicles, not equipped for racing, initial pressure not to exceed 280 lbs.; to carry two or more passengers.
- 2:00 p.m.—5 miles, gasoline machines, between 1,000 and 2,000 lbs.
- 2:30 p.m.—5 miles, steam racing carriages.
- 3:00 p.m.—5 miles, 8 horsepower Panhard vehicles.
- 3:30 p.m.—5 miles, 12 horsepower Panhard vehicles.
- 4:00 p.m.—25 miles, invitation, gasoline vehicles.

Motor cycle entries will be accepted for the events designated for them only. The racing committee reserves the right to pass upon all entries. The entry fee will be \$2 for each event. Entries close at 1 o'clock, Saturday, Oct. 12, with H. M. Brinckerhoff, Royal Insurance Building, Chicago. Any and all matters not covered by the rules are

subject to the decision of the racing committee of the Chicago Automobile Club.

The club sent a committee to Detroit on Wednesday to attend the races there next day, and try to interest some of the men racing there in the Chicago events.

Credit for the Press Bureau

Referring to the work of the press bureau established by the MOTOR AGE in connection with the late endurance run, the National Advertiser, a New York publication, says:

"A singular oversight at the beginning of the test was the neglect to provide a press agent. Reporters for daily papers were on hand, pursuant to invitation, but it was nobody's business to supply them with information, and this in the face of the fact that the manufacturers hoped to get a vast quantity of free advertising.

"Louis Richard Smith and W. J. Morgan, New York representatives of the MOTOR AGE, came to the rescue. They established a press bureau on their own account, and at the end of each day's run they gave the records to the reporters. Some incidents of the run, if published without explanation, would have been highly unfavorable to certain manufacturers. To furnish the needed explanations was part of the self-imposed task of Messrs. Smith and Morgan. Besides, they acted as correspondents for three dailies."

Chicago's Officials Want Automobiles

Nothing but the poverty of the city prevents the purchasing agent of Chicago from trying automobiles in the fire and police departments about this time. The abnormal price of feed is the cause of great dissatisfaction but the authorities have decided that, for the present, they must stand it, having no money to invest in the new form of vehicles. Oats and hay cost the city 44½ cents a bushel and \$16 a ton, respectively, as compared with 28 cents and \$11 last year.

To Be Sold at Custom House

Dr. J. E. Lyman, who imported a 12-horsepower Panhard some time ago and who was the original owner of the machine now owned by Robert Shaw, is in trouble with the customs authorities. He represented that his vehicle was second-hand and stated that it should come in duty free

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as a part of his personal effects. It is no doubt true that the doctor used the vehicle while abroad this summer. The customs people placed a value of \$6,000 on it and now announce that it will be sold at auction on Oct. 10. This is the first case in which a machine has been so disposed of by the authorities. It is probable that the doctor, or some of his friends, will buy it for less money than the custom house people demand.

Bouton's Early Experiments

The following has been added to the literature of automobilism by C. J. Field, through the New York Mail & Express: "The invention of the De Dion motor made the gasoline automobile possible, and its development is one with the development of the industry as we know it today. Previous to the remarkable improvements first suggested and carried out by Mr. Bouton, gasoline motors were very large and cumbersome, and their employment was confined to a few industries where floor space was of little value, and where irregular running and frequent stoppages for repairs were of little moment. Many of the early gasoline motors were used for pumping water and for other agricultural pursuits. A curious circumstance is that when Mr. Bouton first began his experiments with the object of making a practical automobile, his attention was confined to a steam vehicle, and after many years of study he developed the steam tricycle, but a great many problems still confronted Mr. Bouton. Count De Dion, hearing of the experiments of Mr. Bouton in his workshop at Rennes, interested himself in the inventor's work, and a partnership was formed by them. The first gasoline motor that was considered perfect enough for application to a vehicle was a little engine of $\frac{1}{2}$ horsepower. It had its faults, but they were largely those of design. The essentials were as they are today in the De Dion motors of 3 $\frac{1}{2}$, 5, 8 and 16 horsepower."

Porto Ricans Want Wagons Hurried

There is a first-class row on between the Baldwin Motor Wagon Co., of Providence, and the incipient Porto Rico Transportation Co., which agreed to use Baldwin vehicles.

An enterprising individual named James

W. McEwen decided that there was a big chance of coining money by introducing an auto-wagon service into Porto Rico.

Mr. McEwen made a contract with the Baldwin company for the construction of three omnibuses and a delivery wagon. But a snag was struck when the steel strike broke out, for the mills were unable to produce the metal parts used in the motor wagons. Mr. McEwen chafed over the delay. Finally he claimed that the company had not kept its contract for the delivery of the wagons within a certain time, and he brought a suit for damages of \$25,000. This was last Saturday. The sheriff intrusted with the writ of attachment in the case hastened to the Baldwin company's place and captured the wagons. Parts of them were quickly removed, and it was while an attempt was being made to solve the problem of hurrying the nearly completed omnibus away that the company tumbled to the game. Then lawyers were consulted and matters grew interesting.

The McEwen side of the dispute wanted to take the tools which were being used in making the wagons and finish them, but counsel for the company warned the sheriff who had the attached property that such a proceeding would involve him and his bond in considerable trouble, and he kept the property closely in his possession. Then the Baldwin company rushed an attachment process and the wagons and paraphernalia were levied on again by another sheriff.

Scott Company Retires

The Scott Automobile Co., of St. Louis, made an assignment last week to W. Davies Pitman, secretary of the company. The assets are stated to be \$25,000 and the liabilities \$17,000. The creditors are nearly all local houses and the influence of the failure is not likely to be felt outside of St. Louis. The company was organized a year ago to make electric vehicles. Later Charles R. Drummond, the tobacco man, became interested and the capital was increased to \$50,000. It is said that too much money was spent on the plant and that, when it was gone, no one volunteered to supply more. Mr. Drummond owns the building in which the business was conducted. The failure has caused general regret, Mr. Scott having made many friends in the trade during his brief connection

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with it and the concern having been regarded as conducting a clean cut, though not extensive business.

The New York Show

A splendid list of exhibitors has been secured for the New York show, which opens on the first Saturday in November and all friction which existed between the makers and the management, or the Automobile Club of America, seems to have been patched up. The show cannot possibly be as interesting as the industry deserves, however. Some months ago the manufacturers' association made a request that the show be held later than November. The club, however, proceeded with the plans for holding it on the dates originally set. At this the makers were annoyed. They argued that, inasmuch as all of this year's

models had been exhibited at Buffalo and elsewhere all through the summer it would be impossible to show the public anything new, especially as none of the makers, even though they had anything ready, would be willing to show it 4 or 5 months before the opening of the new season. There was fear, for a time, of serious friction, but, considering that anything of the sort would be unfortunate in these early days of the industry, the makers finally concluded to do their best to make the event interesting. They determined, however, to take an active part in any and all shows to be held after this time.

Run of a Rig That Runs

Immediately after the endurance run John L. French, who operated the St. Louis carriage, wrote from Boston to the mak-



THE FRENCH MILITARY MANOEUVRES.

General Brugere, commander in chief (facing the camera) accompanied by General Sackaroff, the Russian delegate, enjoying lunch in a military automobile.

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ers a glowing account of the trip, from which the following is taken:

Remember that I had two passengers on entire trip beside myself, and the carriage is only intended for two all told. Never had to push on a single hill. There was no breakage or replacement on machine from start to finish except batteries, which trouble was caused by rain short circuiting them. It also interfered with auto-sparker and I lost about 4 hours on account of this. I only had one stop outside of this short circuit. It came from gravel, sucked through inlet and getting under exhaust. This delayed me about 30 minutes. I lost another 30 minutes trying to help H. R. Winthrop back onto road. You may have read where he nearly lost his life hanging on edge of precipice. So you see considering my handicap of three passengers and short circuit I made a very good showing.

My time on Nelson Hill was about 9 minutes. Part of this came from a stoppage, about five of us getting jammed on hill.

You may have noticed that St. Louis runabout was on the "Royalty list" with a few others and has an average of about 10½ miles per hour. Not so bad when you consider we had only one stock machine and carried three passengers. No machinists along or any assistance at control stations.

Something Doing at Springfield

Frank Duryea and the Hampden Automobile & Launch Co. seem to be in line for business for next season. Some time ago the J. Stevens Arms Co., of Springfield, Mass., bought the plant of the defunct Overman Wheel Co.—one of the finest in the world, by the way—and prepared to make bicycles. It has done little in this line, however, and now it is announced that it will make automobiles, the plant of the Hampden Co. having been moved into the Stevens factory. With so fine a plant and so experienced a man as Duryea at the head of it there should be "something doing" at Springfield next season.

The English Trade Situation

Following the invitation issued by the president of the English cycle makers' association to the makers of automobiles to

join and make one big organization for the benefit of both trades, details of which were mentioned last week, a meeting was held in Coventry and the offer of the cycle association was somewhat scornfully rejected. The papers place some of the blame on the president, asserting that he made the show question the predominating feature and failed to call attention as forcibly as he should have done to the advantages of the proposed amalgamation in other directions. The attendance of people interested in the motor vehicle trade was slim and the few who attended were decidedly antagonistic to the proposed amalgamation. Finally a resolution was put to a vote and carried to the effect that the cycle trade continue to paddle its own canoe and the automobile association do the same. There the fiasco ended. The papers and people interested are still considering what might have been done had there been a better attendance, but the opinion prevails that the project is dead for all time. It is now proposed to change the name of the cycle association to the Cycle and Motor Cycle Manufacturers' Association.

Endurance Report Is Ready

New York, Oct. 5.—MOTOR AGE's results and discussion of the endurance run still remain the only data of the Buffalo test. The report of the committee has been completed and is in the printer's hands; but it will not be given out until it has been reviewed by the governors at their meeting next Thursday.

Copying French Designs

"It is all very well to say that we cannot learn anything from the French builders," said a well-known manufacturer to a MOTOR AGE man recently, "but in the design of the bodies at least we are rapidly following in their footsteps. Take the tonneau, for instance. Nine out of ten manufacturers in the country are making or about to make this type of carriage. It is proving popular wherever shown, and inside of a year will be the rule instead of the exception. We are all also about to produce the little runabouts with the motor under a bonnet in front, which is the prevailing type in France. This style of carriage has much to recommend it. The

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motor, being in front, throws most of the vibration on the front springs and tires, the working parts are easily reached and the long wheel base makes the seat a most comfortable one. The carriage looks like what it is, an automobile and not a horse wagon with the horse left off. When these types of bodies are in general use then, American like, we will all begin to improve on it, but until then we can do worse than keep our eye on the Frenchmen."

Great Preparations at Joliet

Arrangements for the races at Joliet, under the management of the Joliet Driving Club, are progressing famously. Last week two members of the committee attended a meeting of the Chicago Automobile Club and were promised the hearty support of the members, many of whom will enter some of the races. Chairman Crolius has since been to Buffalo and has seen some of the owners of fast machines there and is hopeful of securing them as competitors. He will probably attend the Detroit meeting also. The club is sparing no expense to make the event a success. The cups, of which two will be offered for each event, were purchased in Chicago last week and will be most creditable to the club. The track is one mile in circumference and is regarded by horsemen as the fastest in the state.

Arrangements have been made to start the

road race, which occurs on Saturday, at 55th street and Western avenue, Chicago. Permission has been secured over the greater part of the route and the committee expects to make arrangements for a special train for the benefit of those who desire to see the start and the finish. A number of Chicago men rode over the course last Sunday and report that, although rough in places, it is by no means bad for the purpose. Full details of the route and all other arrangements necessary will be made at a meeting in Chicago on Friday.

The programme includes 16 events, for all classes of vehicles. Invitations have been sent to officials of all the prominent clubs, inviting them to become the guests of the Joliet club and act as officials. The list of events and other information may be found in an advertisement in another column.

The French Military Manoeuvres

The French grand maneuvers were this year of unusual importance, partly because of the introduction of the automobile to the military service. They occurred during September and about 125,000 soldiers participated. The vice president of the superior council of the army, or, in other words, the future commander, made good use of his machine in visiting the outposts. Each of the contending armies had two of the Scotte locomotives, of which three belong to the government and which



THE FRENCH MILITARY MANOEUVRES.

The Scotte Train, at a stopping place, drawing nine supply wagons.

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were used as tractors for the provision and baggage wagons, of which each was able to pull nine. A special committee followed the operation of the automobiles and will, in due course, make a report thereon to the war office. The accompanying illustrations are from *La Vie Grand Air*.

Prophecy of the Automobile

Nahum, the Elkoshite, one of the tersest and most compact of the Old Testament prophets, may have foreseen the era of the automobile. In his memorable utterance, entitled "The Burden of Nineveh," he uses these words: "The chariots rage in the streets; they jostle one against another in the broad ways; the appearance of them is like torches; they run like the lightnings." Self-motors in New York's chief thoroughfare meet that description exactly.—Chicago Record-Herald.

New Enterprises

Rockaway Motor Co., Brooklyn, N. Y., capital \$4,000; to make motors and launches and other conveyances. Directors, John May, Joseph Bauer and Ernest Fielder, all of Rockaway Beach.

The Church Mfg. Co., of Adrian, Mich., expects to have a new automobile ready shortly. The machine will be a one-seated conveyance, with a gasoline engine as motive power. The work is something of an experiment. If successful, it will lead to the construction of several more, and later, perhaps, a permanent business.

Puncturennot Tire Co., capital stock, \$1,000,000; object, manufacturing; principal office, 419 Market street, Camden, N. J.

The Stein Double Cushion Tire Co., capital, \$100,000; manufacture tires. The incorporators are K. K. McLaren, Evan J. Dudley and H. S. Gould, all of 15 Exchange place, Jersey City, N. J.

An automobile service for passengers is to be placed in operation in McKeesport, Pa. R. L. McCarty, manager of the enterprise, has returned from New York, where he purchased four Mobiles, and says that the machines are now on the way to McKeesport. The line will run from the business section of the city to Riverview, East and South Parks.

A line of automobiles running at regular intervals from the Genesee Valley Club,

Rochester, N. Y., to the Country Club at Brighton is projected for next season.

Hill-Climb in Austria

The first important hill-climbing contest given in Austria was held on Sept. 22 on the Semmering, near Vienna. The course was 10 kilometers, or 6 miles 376 yards, and the average rise was 4 per cent. The race was divided into four classes, with this result:

MOTOCYCLES, UP TO 550 POUNDS.

1. Dietrich, 8 horsepower De Dion, 13m. 22s.
2. Warchalowsky, 3½ horsepower De Dion, 17m. 42s.
3. Rokonitz, 2¼ horsepower De Dion, 26m. 37s.

VOITURETTES, UP TO 880 POUNDS.

1. A. Spitz, 6 horsepower De Dion, 18m. 14s.
2. Blake, 4½ horsepower locomobile, 21m. 13s.
3. Eidlewsky, 6½ horsepower Darracq, 24m. 14s.

LEIGHT VEHICLES, 880 TO 1,430 POUNDS.

1. Edmond, 20 horsepower Darracq, 14m. 35s.
2. Hyeronimus, 12 horsepower Darracq, 15m. 17s.

VEHICLES OVER 1,430 POUNDS.

1. Dr. Stern, 35 horsepower Mercedes, 12m. 30 2-5s.
2. Mercedes, 35 horsepower Mercedes, 13m. 42s.
3. Devaux, Gardner-Serpollet, steam, 14m. 21s.
4. Porsche, Lohner-Porsche, electric, 14m. 29s.

Manufacturers Will Meet

New York, Oct. 5.—There will be a meeting of the executive committee of the National Association of Automobile Manufacturers the middle of next week. Secretary Knappen declares that applications for membership are pouring in at the rate of three or four each mail.

Singer Motor Cycles in America

It is announced at Dayton, O., where the factory of the Davis Sewing Machine Co. is located, that it is probable that an arrangement will be made for the manufacture there of a machine similar to the English Singer, the motor being located entirely within the rear wheel. A representative of the company went to New York last week to meet an officer of the Singer company.

Another Big Track Canard

Oakdale, L. I., Oct. 3.—It is reported here that Frederick G. Bourne is contemplating building an automobile track around the outer circle of his 800-acre estate at Oakdale. Mr. Bourne and his son Arthur have become great automobile enthusiasts, having purchased several of the best makes of machines, and as the

NOTES AND COMMENTS.

Bournes, like the general public, are restricted by law from driving their machines along the country highway with the speed they desire to ride, the proposed private track will afford them ample room wherein to give their automobiles a wide-open throttle.

Haynes-Appersons in the Test

According to the figures as they stood at the close of the endurance run, both of the Haynes-Apperson vehicles missed the control at Herkimer. The attention of the makers was called to the fact and they are most positive in their assurances that both machines departed from and arrived at every control on time. They further state their belief that they made the best average time of any American vehicle. The list of starters and arrivals shows that B 4, one of the Haynes-Appersons, left Fonda at 1:03 p. m., and its companion vehicle, B 5, at 1:08. Writing about the matter, Elmer Apperson, who drove one of the vehicles, says: "You might write to Dr. J. V. Hemsterreet, Herkimer, in whose stable our vehicles were stored for the night, and ask him how many vehicles arrived there before ours. It is our recollection, without referring to the records, that both machines arrived in Herkimer at 4:08 in the afternoon. It is our recollection that both machines were almost exactly 3 hours on the road from Fonda to Herkimer. The running time of B 5 was 12.5 miles an hour during the severe rain storm on Wednesday afternoon. The average of B 4 for the entire distance was 14.8 miles an hour and that of B 5 was 14.78. We hope you will find that the record of the committee will verify these statements. If there were any other vehicles in the run that made this time, with the exception of Mr. Bishop's Panhard, we have so far failed to find them, and we have investigated the matter very closely. Carriage B 4 lost 30 minutes at Palmyra from a broken steering rod. This was the only time lost by either machine on the entire run."

The committee's report may be expected in the course of a few days. The board is to meet to approve it. If there was any error in the original record it has of course been discovered, for the arrival of the Haynes-Apperson vehicles must, of

course, have been recorded in their time books and signed by the official in charge, who, in a hurry, may have failed to make the notation on his own sheets. It should be stated, in justice to the Haynes-Apperson company, however, that the arrival of their vehicles at Herkimer was reported by one gentleman who checked the vehicles and that the time he gives corresponds closely with that claimed by them. The correction would materially alter the completion of the record table, for the average total time on the road of B 5 would be 26h 46m and B 4's time would be 27h 28m, or something like an hour and a half ahead of any other American machine. Under the changed conditions the time of B 4 at Herkimer would have been 3h 5m and of B 5 exactly 3 hours.

Since the above was placed in type we have been advised by those who should know, though unofficially, that the reports of the committee will show that the Haynes-Apperson vehicles finished as claimed by the makers, that they did not miss a control and that they were first and second among American machines. It is expected that the committee's report will be mailed to the contestants and the press not later than Saturday of this week.

A bright example of yellow journalism was shown in New York last week when a large quarter-page illustration was printed purporting to be a photograph of S. C. Boswick breaking the 25-mile record. The picture was supposed to have been taken last Thursday at the Empire track by "our special photographer." There must have been something wrong with the camera, as Mr. Boswick rode a Winton racer and was accompanied by his chauffeur, but the picture showed him alone, stooping over the wheel of a large Panhard.

J. M. Engel entered into a partnership with John A. Wells, well known in Philadelphia, and Louis Buehn, to conduct an automobile agency. Last week he sought to have the partnership annulled, claiming that his partners had misled him and induced him to invest his money by false pretences. The court overruled the application.

Charles A. Allen, manager of the New

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York branch of the American Steam Gauge & Valve Co., of Boston, states that his company is enjoying a big business in gauges and other steam fittings from the automobile trade. The company has issued a complete catalogue and will send a copy to persons interested.

Hans Renold has long been considered the king among British chain makers. His chains are to be made in this country by the Link Belt Engineering Co. and the Link Belt Machinery Co., the latter of Chicago. Samples have been submitted to Mr. Renold for approval and have been pronounced satisfactory.

In complimenting the *MOTOR AGE* for its good work among the New York state newspapers during the week of the endurance contest, J. A. Kingman, of the Locomobile Co. of America, said recently: "It is just such work as that that makes a trade paper valuable to the industry it represents."

The authorities of Biloxi City, Miss., have decided to bar all automobiles and motor cycles from the streets and arrest offending drivers. This action was taken on the advice of the learned city attorney, whose place, apparently, is a kindergarten for aspiring young lawyers.

Five races are to be run at Providence on Friday, the 17th, under the management of the Rhode Island Automobile Club. There are two events for vehicles below 12 and two for vehicle above 12 horsepower, each of 5 miles, and a 10-mile race for the winners of the other four.

D. S. Crosby, Jr., and I. S. Carpero have been appointed appraisers of the assigned estate of the Scott Automobile Co. by Judge Douglas. The bond of Assignee W. Davies Pittman of \$50,000, with the Mississippi Valley Trust Co. as surety, was approved.

The vehicles owned by the Illinois Electric Vehicle Transportation Co., which went out of business a few months ago, are being sold slowly at prices ranging from \$500 to \$600. The same remark applies to the carriages of the Boston company.

The White Sewing Machine Co., Cleve-

land, has purchased additional ground adjoining its present plant, on which a seven-story building will be erected in the spring. It will contain 90,000 square feet of floor space.

There is talk of the organization of a company at Omaha to make motors invented by a local man and to apply them to busses and other heavy vehicles. One bus has been made and is doing good work.

Harry Bennett, of Findlay, O., is building an addition to the rear of his shop, and new machinery will be added for the building of automobiles. He is at present rebuilding the auto of Dr. F. W. Rodgers.

Frank S. Barnett, formerly purchasing agent of the U. S. Long Distance Automobile Co., of Jersey City, sends notice that he and Louis B. Smyser, formerly superintendent, have resigned their positions.

The officials of Winnetka, Ill., have adopted the plan of stretching a rope across the road to catch automobile scorchers. For such machines as that driven by Mr. Gates a wire cable is respectfully suggested.

The Automobile Club of Scranton, Pa., was organized with the following officers: C. S. Weston, president; John H. Brooks, secretary; M. H. Smith, treasurer; Andrew Bedford, trustee.

At a meeting held in Philadelphia on Oct. 4 an association of automobile dealers was formed and it was decided to postpone the proposed automobile show until some time early next year.

The Tivy Cycle Works, of St. Louis, is at work on an automobile. If it proves a success the manufacture of machines will be continued.

The Automobile Club of New Jersey held its annual meeting at Newark on Monday.

In the late trials at Glasgow the vehicles were classified by price only. The dividing lines were \$1,250, \$1,750 and \$2,500.

The Beardsley & Hubbs Mfg. Co., of Mansfield, O., manufacturer of automobiles, will move to Shelby, O.

BOSTWICK'S ATTACK ON THE RECORDS

New York, Oct. 6.—Albert C. Bostwick, in the 40-horsepower Winton racing machine built for his use in the proposed Buffalo-Erie race, made a partially successful attempt at the Empire City mile trotting course last Thursday afternoon to lower the American circular track record figures up to 25 miles, established by Henri Fournier and his Mors machine at the Fort Erie track near Buffalo on Sept. 27. Notwithstanding a 20-mile-an-hour gale and a track soft from recent rains, Bostwick cut Fournier's figures for the first 13 miles and was but 36 3-5 seconds behind the Paris-Berlin winner's 31:44 1-5 at the finish.

Mr. Bostwick will make another ride against time at the same place next Thursday afternoon, and is confident that under more favorable conditions of wind and track he can lower the figures for the entire distance.

Incident to the trial great interest was manifested as to whether the mile record of 1:14, established by Fournier in the sixteenth mile of his trial, would be beaten. Mr. Bostwick covered the sixth mile in 1:15 1-5, as against his own former American record of 1:16 1-5, made at Elkwood Park, Long Branch, last summer.

This trial of Mr. Bostwick's is probably but the beginning of a series of trials and perhaps actual races at the Empire City track this autumn, and the magnificent course may become the trial ground for American makers and owners. Fournier was pleased with the trial and said he could not be on hand with his Mors, as it was en route from Buffalo. It is safe to say, however, that the foreign champion will not permit his figures to be wiped out without another, and, if necessary, several attempts, to set them lower.

Albert Champion, the Orient motocyclist, who scored 1:15 for the mile at Vailsburg, N. J., last Sunday, has asked permission to make a trial on the course with his 4½-horsepower Aster motor bicycle. An ex-racing man connected with an American

company, whose vehicles have been prominent in endurance and racing tests, told a MOTOR AGE man on Friday that he would perhaps appear at the track next Thursday with one of the new racing cars just turned out by his company and ask Mr. Bostwick to make a race of it or undertake a separate trial at the conclusion of Mr. Bostwick's.

David Wolfe Bishop was on hand with his crack Panhard of endurance run fame, and so was Edward R. Thomas, of Buffalo, with his newly purchased White Ghost Daimler racer. These gentlemen did not attempt to intrude trials of their own, but are not likely to resist the temptation long. W. L. Adams, A. L. Riker, H. E. Esterbrook, B. B. McGregor and Frank Eveland were prominent among the mounted chauffeurs present. Several hundred spectators were also on hand, and a detachment of mounted police kept the course clear.

Incidentally it may be remarked that the Buffalo-Erie race committee has as yet made no announcement of a course selected or any arrangements made for the promised postponed race. Might not a distance race or a series of middle distance races on the Empire City track make a very acceptable substitute for the big road race should it be impossible to put through the latter at this late day?

Mr. Bostwick's machine was a 40-horse-power racing Winton with double horizontal cylinders weighing 2,650 pounds. The tonneau behind was removed. Live ballast alone was carried, a mechanic, who stretched himself on the floor of the carriage between the steering post and the dashboard. The track was rolled hard near the pole, to which the driver stuck with great daring, being no farther from it at the curves than two feet. Altogether he made good his reputation for courage and skill.

C. J. Dieges and J. P. Doyle, of the Pastime A. C., experienced timers, held the watches. The following table of times

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made tells the story of the ride and compares Mr. Bostwick's performance with Fournier's:

	Fournier, Sept. 27.	Bostwick, Oct. 3.
1 mile.....	1:27	1:20
2 miles.....	2:45	*2:36 3-5
3 miles.....	4:00 4-5	*3:52 4-5
4 miles.....	5:16 1-5	*5:08 4-5
5 miles.....	6:32 2-5	*6:24 3-5
6 miles.....	7:47 4-5	*7:39 4-5
7 miles.....	9:05 1-5	*8:56 1-5
8 miles.....	10:21 1-5	*10:12 2-5
9 miles.....	11:38 1-5	*11:28 1-5
10 miles.....	12:52 2-5	*12:45 2-5
11 miles.....	14:08 1-5	*14:02 4-5
12 miles.....	15:24 1-5	*15:21
13 miles.....	16:40 1-5	*16:38 4-5
14 miles.....	17:55 3-5	17:57 1-5
15 miles.....	19:10 4-5	19:14 4-5
16 miles.....	20:24 4-5	20:32 3-5
17 miles.....	21:40 4-5	21:50 2-5
18 miles.....	22:56 4-5	23:09
19 miles.....	24:12 2-5	24:28
20 miles.....	25:23 2-5	25:47 1-5
21 miles.....	26:42 2-5	27:05 3-5
22 miles.....	27:57 4-5	28:24
23 miles.....	29:12 4-5	29:42 2-5
24 miles.....	30:28 4-5	31:02
25 miles.....	*31:44 1-5	32:20 4-5

*World's track record.

The Oil Production of Texas

"Crude oil as fuel" sounds well among people who know nothing of the difficulties of applying it, and looks well in a sensational newspaper article. But in the practical application many men have toiled unavailingly for years. Just now, overcome by the magnitude of the oil wells of Texas, papers are telling of how suddenly coal is to become a commercial nonentity, and gasoline is to be supplanted in stoves, automobiles and other "death traps" by the crude product. To all of which the automobilist who knows his business will answer, for the present, "rot."

But there is a little army of men at work on methods of consuming low grade oils for automobile and other uses. Some day some genius will solve the problem, and then all the world will think what a fool it has been not to have thought of the same scheme long ago. The following facts about the new oil fields may prove of interest to those who take an intelligent interest in the problems which confront the automobile maker, but due allowance must be made for the mild form of hysteria which affects so many persons who are interested in developing and selling the new-found gold mines.

Eight months ago Beaumont was a staid community of 8,000 or 10,000 people. Today there are thirteen oil wells sending forth such volumes of the oil that the greatest trouble to the operators is the lack of tanks to hold the stuff.

During the oil excitement of 1867, prospectors visited eastern Texas. They found oil near Beaumont. But the methods for drilling were crude, and as the prospectors found only an inferior quality of petroleum, the fields were practically abandoned.

The old oil men of 1867 with long memories, remembered their Texas experiences. Believing that with the advanced methods of today the oil fields of eastern Texas could be operated profitably, they returned to them. It was on Jan. 10 last when a man ran into Beaumont, crying that on Spindle Top was a fountain of oil 6 inches thick, and going 200 feet into the air, and that when it came it blew the machinery out of the hole. Before a cap could be put on and reservoirs could be constructed, half a million gallons of oil had formed a lake in the hilltop. That first well "gushed" 70,000 barrels a day, and is gushing yet. Since then, twelve other oil gushers have been opened, and the daily output of Texas oil is estimated at 800,000 barrels, or \$3,200,000 a year.

The quiet little city has trebled in size, and land that wouldn't bring \$25 an acre last New Year's, is finding eager buyers at \$40,000 an acre now.

The present actual production is more than 800,000 barrels a day, and the vast field hardly more than "sampled."

The total coal production in the United States is 253,000,000 tons a year. It is valued at \$256,000,000 at the mines.

Tests show that it requires three barrels of Texas oil to perform the work of one ton of coal for steam purposes. That is to say, 60 cents worth of crude oil is equal to a little more than \$1 worth of coal at the place of production. The difference in the cost of transportation makes the cost of oil for fuel purposes 71 per cent less than the cost of coal.

The thirteen "gushers" of Beaumont alone produce 300,600,000 barrels of oil per year, or nearly half enough to equal the total coal production of the country when used as fuel. The production of the balance of the Texas oil field, now in the course of rapid development, is already large enough to swell the annual total to 500,000,000 barrels. It is reported that experiments in local furnaces close by the "gushers" developed the important fact that oil as fuel under the boilers could be used at an actual saving of 71 per cent

A NATIONAL RACING ORGANIZATION

Has anyone yet given thought to the sudden interest in automobile racing, the causes of the movement and the effect? Two months ago, perhaps because of the heat of the summer, no one aspired to promote automobile races except the good people of Newport who had nothing else to do. No sooner had reasonably cool weather set in, however, than Buffalo, Detroit, Chicago, Providence, Joliet, St. Louis and no end of small towns announced race meets, so that the time of the big men is so taken up that their attendance at all the meetings is an impossibility. The sudden enthusiasm is due, in some measure, no doubt, to the late endurance test, the arrival of Fournier and the purchase of fast machines by well known people east and west. No matter what the cause the enthusiasm is here, and here to stay, and it may be taken for granted that the season of 1902 will be the occasion of such a flood of automobile racing as has never been thought of in this country and probably not in any other.

Under the circumstances it is time steps were taken to more thoroughly organize the clubs and others who will offer prizes for automobile races. There is at present no properly constituted body charged with the control of racing or the adoption of rules or the arrangement of dates to prevent conflict. True, the Automobile Club of America aspires to control and has carried out its part of the programme with satisfactory results so far as they go, but the club is a self-constituted authority which undertook the work in the absence of any national organization and which would no doubt welcome the counsel and assistance of club members and others in other parts of the country. The gentlemen of New York, who have done so much for the sport, will doubtless pardon the suggestion of west-

ern men, for example, that they do not relish the idea of applying to a club in New York, with which they have no direct connection and in whose management they have no voice, for "permission" to conduct a race. They may do so for the present but the sentiment is against such action and for the preservation of cordial relations it would be better that all clubs be given an opportunity to be represented in the governing body of the sport.

Some weeks ago it was reported that the New York club had decided on a plan of affiliation and would invite other clubs to confer with it. The exact objects of the affiliation were not stated at the time but they no doubt included all such matters as racing. It is highly probable that other clubs would gladly accept such a suggestion. We have knowledge of one resolution, drawn with the same object in view, for presentation to one of the prominent clubs, and withheld because of the movement by the New York club above referred to.

Racing will commence early in the spring. Possibly as early as Decoration day. Many promoters who thought of the matter too late to put their plans into operation this season are now figuring on events on a large scale next year. They should not all be left until the fall and then crowded into a few weeks. Nor should they be allowed to clash unnecessarily. During the winter, therefore, there should be a conference between club officials so that, by the time spring opens, a governing body may be properly organized. Application should be made to that body for sanction and dates so arranged that there will be no conflict of interests. The clubs are interested in knowing whether the New York club will take the initiative.



NEW YORK-BUFFALO ON A MOTOR BICYCLE

BY CHARLES H. METZ.

(Continued from last week.)

Time was taken for the noon control at Fonda. How I wished I might be allowed to continue instead of waiting 3 hours, the scheduled time for leaving. The rain had ceased, but the weather was threatening; the roads had not yet been soaked into that slippery pulp which they are capable of throughout New York state.

Let me now assert what I believe to be the most trying condition of the run; that is, being compelled to operate within the time limits, morning and afternoon. Could I have continued without the 3 hours' wait at Fonda I would easily have reached the night control at Herkimer and have finished dinner by 12:30; then, pushing again forward, I would have passed that never-to-be-forgotten mud-hole between Frankfort and Utica, reaching those fine cinder paths of Oneida county, where I would have defied Father Neptune in his downpour, unmerciful as it was on that afternoon when leaving Fonda for Herkimer, 38 miles away.

A RACE WITH BISHOP.

But not a moment was lost, however, from the time the control was opened at 1 o'clock. I had left my wheel first in line as it had reached the control. Scarcely were the words, "Are you ready? Go!" out, when down went my compression tap and the motor responded instantly. The next out was the white Panhard. I knew there would be hot rivalry, for Mr. Bishop was in this run to reach those controls first. I must say, too, that I admire his pluck. Being practically the only contestant now in the run who was not interested commercially in automobiles, in true sportsmanlike manner he was bound to conquer conditions as well as vehicles.

About 5 miles from Fonda I encountered a dangerous piece of road and slowed up. Soon I began to hear that rhythmical hum which I knew to be Bishop's Panhard overtaking me, and as he passed by he bid me encouragingly, "Don't be afraid of her; let her out." Afraid he certainly was not.

I soon struck a fine piece of side path, and we see-sawed together for 5 miles or more, each gaining the lead as road conditions would permit. The downpour was, in the meantime, increasing in fury. I had the lead again and was out of hearing from approaching vehicles when my motor began to work irregularly. I observed that the electrical connections would become short circuited owing to the quantity of water now collecting on the igniter. So far the heat from the engine had dried it so it could cause no trouble, but now the motor had been cooled by constant saturation from the rain, and I endeavored to keep the ignitor dry by occasionally wiping with a handkerchief. This did not last long, for soon the handkerchief was soaked, and I had to resort to a barn near by to insulate the igniter with tire tape, which I had neglected to do as a safeguard before starting. Under usual circumstances this precaution is unnecessary, even in ordinary rainy weather; but the cloud burst had been uninterrupted, except for an occasional peal of thunder and sharp lightning, for at least 30 minutes, so by the time I was again ready to start the roadbed had been converted into a waterway. The most cautious driving became necessary, and walking was indulged in when wheeling became impossible. I realized that under present conditions four wheels were better than two; in my periods of trundling the wheel along the roadside there must have been a sense of satisfaction to those in the cars as they passed by me, even though the conditions to them were adverse, and it became difficult to keep from sliding into the ditch with four wheels.

THE PEOPLE WERE COURTEOUS.

I availed myself of every inch of side path or cow path, and went so far as to disregard all the regulations of sidewalk riding through the smaller towns. Once, out of common decency, I dismounted where crowds had gathered to watch the struggling autos through the business por-

THE CHICAGO SHOW.

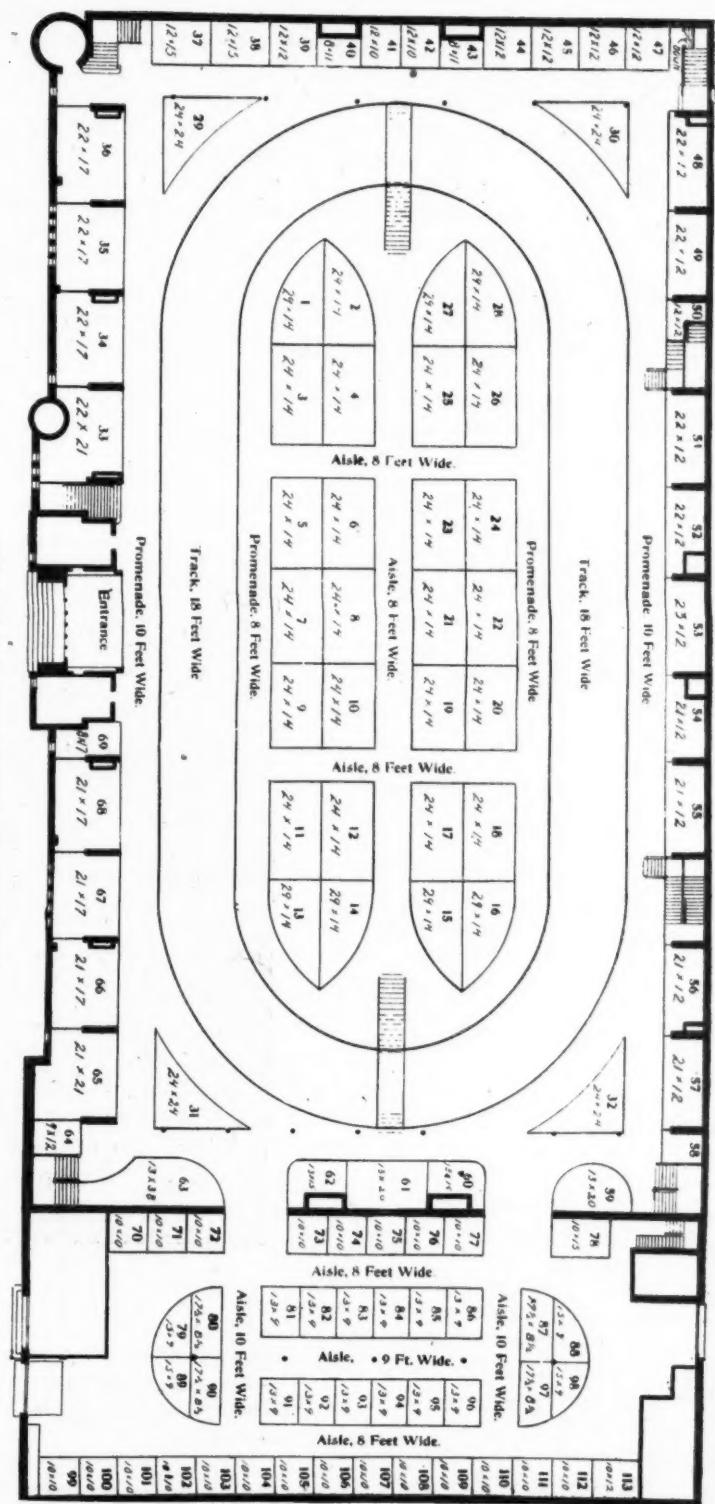


DIAGRAM OF THE CHICAGO COLISEUM.

As arranged for the First Annual Automobile Exhibition under the auspices of the Chicago Automobile Club and National Association of Automobile Manufacturers, March 1-8, 1902.

NEW YORK TO BUFFALO ON A MOTOR BICYCLE.

tion of a small town, but I was immediately invited to resume my riding, I presume partially out of curiosity to see the thing go, and possibly their shame for allowing such condition of roadway.

Often I would follow a short path which would finally lead me into the thick grass and swamp, where I would endeavor to continue. My motor was willing enough, but I had not the skill to jump hurdles and ditches. My first experience in tumbling at Albany stood me in good stead, for I became reckless; a trick mule would not have phased me.

I was learning a lesson of distance which I shall never forget. Trundling my bicycle through the mud, sliding back nearly the whole of each successive step, I came upon a farmer curious to be enlightened as to "what makes the thing go." You may imagine I was in no mood of explanation, but in turn asked about side paths, which I was told I would soon encounter. I learned that $2\frac{1}{2}$ miles farther on I would come upon it, so with this encouragement I trundled along.

FED AT A FARM-HOUSE.

I began to feel tired and hungry, and had determined to ask for bread at the next house, about a mile away. That mile to me was farther than twenty-five would have been on a passable road. I finally reached the house; the occupants amazed at my request for food, but gladly contributed to my wants in the form of dainty sandwiches and ginger cakes; for relish watermelon was offered. I apologized for my appearance and offered to pay for the repast, but no money was accepted.

Right here let me record the general good-will, charity, kindly feeling and interest displayed by every one with whom I have come in contact in this run. The American public surely looks upon the automobile as a great progressive step in the march of useful innovations. As an index to the coming popularity, one needs only to have witnessed the masses which turned out to greet the drivers with their motors through every city, town and hamlet which we passed.

BELT RIM BECAME LOOSE.

At last I came upon the blessed side path, so on we went towards Little Falls. How easy the miles were now measured

off; but what's that clatter-clatter? I stopped, and behold, just as the unhappy conditions of road surface had been overcome my trusty wheel is going back on me. The belt rim which had been so unmercifully battered up over boulders and rocks, and carelessly straightened, had now become loosened, so further progress by motive power was out of the question until a repair shop could be reached.

Should I take off the belt and pedal on to Little Falls and Herkimer, 15 miles away? Think of the humiliation, and right in my stamping ground. No, I could not bear to think of entering these towns in this manner; I preferred the express, so, walking with the machine back to East Creek, a small station on the New York Central, I inquired about the next train,



The Road Had Become a Waterway.

but was only told, "You don't expect to get that thing on, do you?" and then, with a hasty dodge, my man attempted to steal away with the remark that it was time for supper.

FORCED TO TAKE TRAIN.

But I was not to be bluffed off in that

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manner. The sign of the American Express Company was over his door, and, pointing to it, I said: "Look here, my man, your supper can wait. That company is doing thousands of dollars' worth of business with us annually, and if I report to them that you would rather eat your supper than answer pertinent questions you are very likely to lose your job." I regretted immediately having been so harsh, for the good soul was evidently one of these old railroad veterans who had been given a berth in this unfrequented place as a sort of pension for past honorable duty; besides he was being hectored by his worthy (or unworthy) spouse, who continually whined, "Aint you coming to supper?"

PRIDE GOETH BEFORE A FALL.

We became close friends, each softened toward the other, and I learned that the express was due at 7 o'clock, one hour hence, but there was still the problem of getting the thing aboard. He could not lift anything so heavy, and even with my help he did not think we could get it on, for the train would scarcely wait long enough to throw off the mail bag, so I suggested taking the machine apart so as to divide the weight, which was approved of. I removed the rear wheel and front wheel with fork; also the tool bag. We then had it stripped to 100 pounds, which we could handle. Our next trouble was in making out the way bill and tags. The old gentleman had, in the excitement, mislaid his glasses, so no clerical work could be done. Several passengers came along for tickets, but no tickets could be sold, for glasses were necessary to distinguish them. After a hunt by the passengers and myself we located the glasses, so our wants could be attended to. Fortunately the train was 20 minutes late, for my friend had just finished with his way bill and entry as the train rolled in.

A wheelbarrow was the only conveyance of the express company at this point, so I loaded the disassembled parts and wheeled them along to the door of the express car, a new experience in motor wheeling for me; but what a downfall from entering in triumph at the head of the procession to a wheelbarrow and express company into Herkimer!

Immediately I looked up a repair shop

for fastening on the rim. I found it at the Herkimer Cycle Co., to which place the motor was taken by hand-truck through the middle of the road, piloted by me, but at a respectable distance. Fortunately the disassembled mess did not resemble an Orient motor bicycle, for the crowd jeered at the remains of what they thought to be one of the competing carriages smashed up.

A number of my friends had come down from Utica to greet me, but had just left at 7:45, having given up hope of seeing me. I mingled with the crowd at the Palmer House, and might have had my time book signed, for I could have taken the wheel after assembling and to all appearances have been a successful arrival; but let us be truthful. I do not consider the motor cycle in any way impractical, notwithstanding the adverse conditions encountered. To be sure, there will be improvement, and I am learning golden lessons from this trip, but, developed as it is in this model, I am wonderfully pleased with the result.

THE HEAVENS AGAIN OPENED.

At midnight repairs to my belt rim were completed by the obliging members of the Herkimer Cycle Co. Both gentlemen are thorough mechanics, and they evinced a great deal of interest in my motor cycle. During the night I wished that the rain might cease, but morning came with little hope of clearing, but the rain was not heavy, and I concluded to wait until the closing of the control, in hope that the roads might dry to some extent. My time was taken at the control 9:48, but I did not leave until an hour later. No sooner had I started than another downpour came, and it seemed as if the floodgates had been let loose. I again practiced the nervy feat of riding through the small towns of Mohawk, Ilion, and Frankfort on the sidewalks, holding my machine down to a very slow pace, without the slightest danger of molesting a foot passenger; in fact, scarcely a soul ventured out as I was passing through these towns; the weather conditions kept them inside.

WONDERFUL WAYSIDE REPAIRS.

Between Frankfort and Utica there is a stretch of road which every one passing over on that day will remember. Hemmed

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in by high fences you pass through a gulch. Webster defines "gulch" as a dry water course. This one was by no means dry; indeed, the new shoes which I had found it necessary to purchase at Herkimer were well broken in before we had passed through this nightmare. Two miles of pushing, sliding and juggling were indulged in, ankle deep in the mire, at the end of which I was promised a cinder path, which loomed up as a sail in the distance to a shipwrecked mariner.

Here was a friend in trouble. Down deep in the roadbed was the end of a broken axle to his car. But discouraged he was not, for soon from Utica came a mechanic with a new axle to replace it, the car was jacked up, axle replaced, and off again in a short time. How the spare parts were supplied so quickly in this and numerous similar cases in which they were juggled up will always remain a mystery to me. Cars that I thought completely wrecked bobbed up like the cat that always came back.

THE FIRST SHALL BE LAST.

I reached Utica at 2 o'clock. Think of it, 3 hours and a quarter for 14 miles; but at least 2 hours were spent thrashing through that mud-hole. Without the sign of a familiar face I passed through my native town. Many had gathered with the early spectators to watch and bid me "bon voyage," but none dreamed of a belated straggler passing through at 2 o'clock. My humiliation was complete; the proverb, "the first should be last," fitted me to perfection, and I was only too glad to pass through unobserved.

Stopping at a wayside inn for sandwiches, and digging out the surplus mud from the wheels and motor, I left my native home at 2:30, and, being in the land of side paths, I was able to fairly fly on to Oneida for the noon control, arriving there just as they were pulling up the control for Syracuse. I stopped only long enough to have record filled in my book, and to renew gasoline, then off for Syracuse.

HE FELL AMONG FEMALES.

Leaving Oneida several miles of good side path riding are encountered; then the clay and sandy roads. By this time I had become so well trained I could handle the machine on slippery roads that I would

not have ventured before. On I ploughed, occasionally overtaking a car. Once I took the wrong road up a steep hill. I was not aware of my mistake until I had taken a severe tumble right in the midst of a group of young girls, who almost went into convulsions of laughter; but I grant it was a comical sight, for my riding was of the trick donkey sort, and the donkey reigned supreme for the moment. This tumble proved fortunate, however, for I do not know where I may have finished that night had I continued on that road.

GOOD BUT RELUCTANT SAMARITAN.

I have one more tumble record which will serve as a grand finale. Within about 10 miles of Syracuse there is a place where side path and road merge together, coming over a gulf some 12 to 15 feet below. Directly past this gulf was a steep grade which I would find difficult to start on should I dismount. The roadbed was extremely slippery. I chose the side close to a high rail placed there for safety to drivers. On entering, my front wheels slipped and shot down into the gulf. I was thrown on to the rail with great force, but fortunately clung to the top. After making hasty examination to ascertain if I had broken any bones, I hailed a man at the top of the hill, requesting help out of the gulf. Reluctantly he came, so together we pulled the wheel out of the hole, and to my amazement and delight it was uninjured.

At the top of this hill I was again delighted, for I overtook and passed my only competitor in Class D, led on into Syracuse, arriving at 6:08 p. m.

Again at Syracuse I waited on the morrow for the roads to dry up, leaving the control at its close about 10 o'clock. No sooner had I reached the city limits when the heavens opened up and we are in for it. Struggling on for some miles I came up to one of the motor cyclists who had resumed at Syracuse, starting with the first vehicles out. He remarked to himself as I passed, "How did I ever get in such a mess," and for several miles after that conditions were getting gradually worse until finally riding became impossible.

A vision of 50 miles or more of mire arose before me, and I concluded to take the train for Rochester. I returned to the station

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at Fremont, where I found my lone companion had already preceded me, and we both agreed that it was the only human way of reaching Rochester with a motor cycle.

ON THE LAST JOURNEY.

As everyone is aware, out of respect for our late president, the run was terminated at this point, but I was determined to note to Buffalo; so, removing numbers from the machine, I continued, taking a round-about course from Rochester through Lockport and Tonawanda. Of the entire ride this last day was perhaps the most ideal of the trip. There is a continuous side-path from Rochester to Lockport, over 60 miles. The country which is passed through along the Ridge road is delightful, abounding with beautiful shade trees and orchards. It seemed such a delightful change

from those miserable mudholes and ditches encountered on the days previous that I began to be sorry that the trip would soon end. From Lockport to Tonawanda, however, some rough riding had to be indulged in, and I felt a sense of satisfaction on being able to ride where every cyclist without a motor was obliged to trundle.

From Tonawanda to Buffalo is a continuous stretch of brick pavement, permitting of the greatest speed. I was not long in turning this last stretch, and soon the electrical tower of the "Pan" loomed up, but not illuminated, for it was only a quarter past 4. My time of leaving Rochester was 10 o'clock, distance 95 miles, with 1 hour for lunch. Passing into Delaware avenue, on to the Genesee Hotel, my trip terminated with a week of eventful experiences.



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CONTACT BREAKERS FOR JUMP SPARK

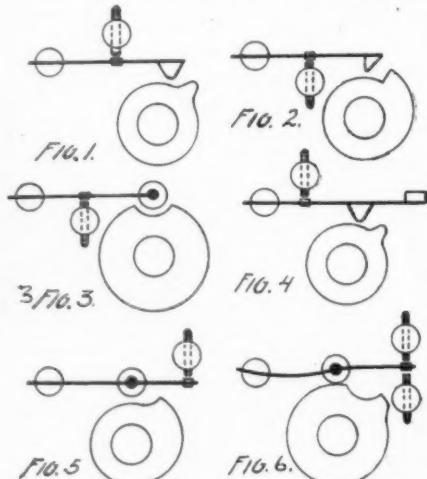
Not long ago the writer was in conversation with the owner of an automobile repair establishment relative to replacing a primary make and break contact form of electrical igniter with one of the jump spark type. The repair man roundly condemned the jump spark, saying that he could not make it jump worth a cent. On inquiry the writer found that this enlightened mechanic had invented a device of his own by utilizing the exhaust valve mechanism to close the primary circuit some space of time ahead of the ignition point, then breaking the secondary circuit outside of the cylinder by means of a small cam or commutator. Finding this method did not work successfully with a plain jump spark coil, he purchased an induction coil with vibrator attachment. This was worse than his first attempt. While it gave plenty of sparks, they did not occur at the required time or place. In fact, after starting the motor by hand, as soon as the primary circuit was closed, a stream of sparks would flow all around the commutating device employed to make the secondary contact, entailing disagreeable sensations to the person turning the crank and compelling him, not reluctantly, to desist. Further inquiry by the writer brought to light the fact that he had called in some so-called electrical expert, whose vocation probably consisted of stringing wires for incandescent lamps and putting up doorbells, and who also condemned the jump spark.

It took considerable of the writer's time and patience to convince the repair man that the jump spark could be made to work successfully, but, after receiving some instruction in the matter, he rather reluctantly agreed to give it another trial upon lines based upon methods in daily use. A few days afterward, when he had made the changes suggested, he was found all smiles, as the jump spark ignition was working, as he expressed it, "out of sight."

It is the province of this article to illustrate and describe some forms of contact breakers which are successfully used on different types of motors. Fig. 1 illustrates a simple form in which the fixed platinum

point upon the spring lever is brought up into contact with the platinum point in the end of the adjusting screw above the spring lever. The sudden moving of the cam nose from under the shoe upon the end of the spring lever makes a quick break or opening of the primary circuit and causes the spark from the secondary winding of the coil to occur at the point of the sparking plug.

Figure 2 shows another form with hook-nosed cam. In this construction the action of the raised portion of the cam lifts the spring lever contact point further away from the adjustable contact point, instead of bringing it into contact, as in Fig. 1. The sudden releasing of the shoe upon the end of the spring lever by the cam causes the lever to vibrate and move downward below its normal position, and, as it is claimed, make several contacts and breaks, although it is



doubtful whether more than one make and break will occur if the motor be running at high speed.

Figure 3 is a somewhat similar device, but a roller is used instead of the fixed shoe upon the end of the spring lever, and the cam has a depression in it, as shown, instead of the hooked nose, as in Fig. 2. This only gives a single make and break at each operation, but is preferred by some builders to that shown in Fig. 2, as there is less

CONTACT BREAKERS FOR JUMP SPARK.

liability of injuring the spring lever if the motor is turned or kicks backward from too early timing of the ignition mechanism.

Figure 4 is of the same general form as Fig. 1, but the spring lever is extended beyond the shoe and has attached at the outer end of this extension a small weight or hammer. The object is to cause the lever to vibrate after being released from the high part or nose of the cam, and to cause the coil to make several sparks at each ignition

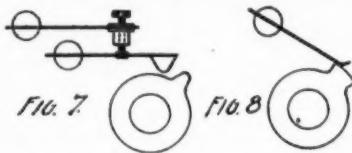


FIG. 7

FIG. 8

point instead of only one, but, as before stated, it is doubtful whether this occurs at high speed.

Figure 5 shows a construction having a roller instead of a shoe to engage with the high portion or nose of the cam. The spring lever is extended beyond this point, and the platinum contact point is at the extreme end of this extension. This construction, on account of the contact point being out on the extension of the spring lever, is said to give a quicker break than the other forms, where the contact point lies between the spring lever support and the shoe.

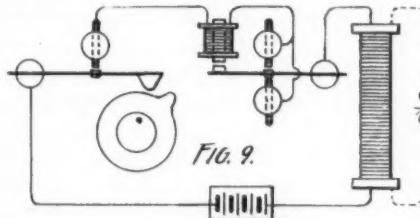
Figure 6 is a form devised by its inventor to give two sparks at each operation. The spring lever roller is kept constantly against the normal periphery of the cam, and alternately causes the platinum point upon it to contact with first the upper and then the lower screw successively by means of the elevation and depression upon the face of the cam.

Figure 7 shows an arrangement to keep the contact points clean by causing a slight sliding action upon each other, due to the angular movement of the upper and adjustable contact screw.

Figure 8 is a simple form of contact maker and breaker which has been used successfully by the writer. It may be used singly, as shown—that is, with only one insulated spring steel contact, the other battery con-

nexion being made through a ground on the motor; or two spring steel levers may be used side by side a suitable distance apart and both insulated from the motor. In this case no ground wire will be required. It has the advantage also of keeping the contact place clean and bright, on account of the sliding action of the cam nose upon the end of the spring contact lever, or levers, as the case may be.

Figure 9 illustrates a form of electro-mechanical contact breaker. The spring contact lever, shown to the right in the drawing, is always resting upon the lower adjusting contact screw in its normal position. When the cam raises the other spring contact lever (to the left in the drawing), the primary circuit is closed, and the battery current flows not only through the induction coil, but through the windings of the small electro-magnet. The hammer upon the end of the spring contact lever, directly below the magnet, is instantly drawn up to the end of the iron cone of the magnet, breaking the connection with the lower contact screw. Its upward momentum or impulse is sufficient to cause a contact with the upper ad-



justing screw, and consequently the closing of the primary circuit by this action, which is immediately broken again by the nose of the cam, releasing the shoe of the other spring contact lever. One of the primary wires is connected in parallel with the two adjustable contact screws, located upon each side of the electro-magnet contact lever, as shown. This method of construction causes two sparks to pass at the terminals of the spark plug, at a very close interval—in fact, almost instantly, while the type shown in Fig. 6 has an interval of at least 30 degrees with regard to the angular velocity of the cam.



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VAPORIZERS, CARBURETERS AND BURNERS

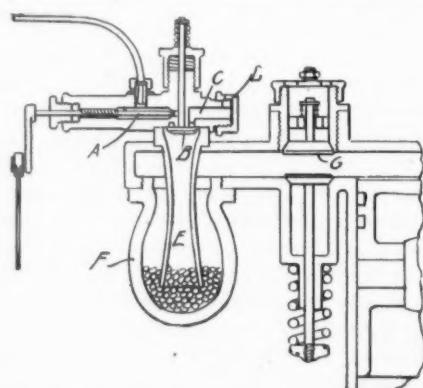
Two French engineers, Leon Laurent and Eugene Clerget, have designed a vaporizing device, which it is said may be applied to any four-cycle engine. The ordinary ignition of the apparatus is dispensed with, and the vapor fired by heated portions of the apparatus upon the compression reaching the proper point. Another distinguishing characteristic of this vaporizer is the introduction of water, which enters through a passage adjacent to and similar in design to that provided for the inlet of the gasoline. The idea is not new, having been tried by Professor Siemens, of Germany, several years ago. It has also been experimented upon at various times since then, particularly by an English engineer who made exhaustive tests in connection with large engines. Reasonably satisfactory results have been obtained in connection with large and comparatively low speed engines, but the plan was long since abandoned in connection with small, high-speed motors.

The illustration shows this vaporizer attached to an extension of the combustion-chamber of an ordinary four-cycle engine. The only other change made in the engine is the disconnection of the regular inlet-valve from the ordinary lead pipe from the carbureter and attachment, in its place, of a cap provided with air-inlets. The gasoline-inlet to the vaporizer is through a needle-valve A, which communicates with the passage leading to the valve B. The valve A is regulated either by hand or by a regulator attached to the motor. Another needle-valve similar in construction and operation to the valve A, is placed at right angles thereto, and also communicates with valve B. This latter needle-valve is for governing the water feed. The seat of the valve B is provided with an annular channel communicating with a passage C, which forms an air-inlet which is regulated by a screw cap D, into which an opening is bored laterally, which can be placed directly opposite—or nearly so, as may be desired—the hole communicating with the air conduit C. At the suction stroke of the engine the valve B, which is similar in operation to the usual

inlet-valve, is opened, allowing the mixture of gasoline, water and air to enter by way of their respective inlets, as above described.

From the valve B the mixture enters the interior of a tube E, which is suspended in an oval or similarly shaped metal receptacle F. Around the outlet of this tube is a quantity of fragments of metal, or some refractory material, which fills a part of the receptacle. At the top of this receptacle is an opening, surrounding the tube E, through which the vapor passes to the combustion chamber.

When it is desired to put the motor in action the exterior of the receptacle F is heated by means of a blow torch or other apparatus. The fragments of metal or other material are heated, and the tube E becomes hot through radiation. The gasoline and water valves are then opened and the motor is turned by hand and carries out successively its four actions. During the suction stroke the fluids and air pass through the tube E and the spaces between the fragments in the bottom of the receptacle F. The temperature of the tube and surroundings being high, the liquids become heated and vaporized during their passage to the combustion-chamber. Also, dur-



ing the period of suction, the inlet-valve G is opened and air is drawn in and comes in contact with the vapor formed in the receptacle F, and in connection with it forms the explosive mixture which, therefore, consists,

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in consequence of the gases which have entered the composition under the influence of the temperature of hydrocarbons, oxide of carbon and **hydrogen**, and therefore differs from the explosive mixtures usually employed.

During the period of compression the valves B and G are closed and the mixture is forced, under pressure, into the chamber of the receptacle F, where it is heated sufficiently to ignite on contact with the heated oil of the receptacle and the fragments contained therein.

An Attached Carbureter

There has recently been considerable effort on the part of gas engine builders and designers to perfect a carbureter which shall be either an integral part of the engine, or rigidly attached thereto. One of the latest devices of this nature is the invention of F. W. Felbaum, a clergyman, of Dayton, Ind. The object is to automatically control the flow of oil into the vaporizing-chamber, so that it will be fed according to the requirements of the speed at which the engine may be operated, as well as to automatically cut off the oil flow to prevent the flooding of the vaporizing-chamber, should the engine be stopped without cutting off the oil feed to the carbureter. Particular attention is given to the distribution of the oil flow within the vaporizing-chamber, whereby to more readily expose the oil to currents of air for its quick and thorough vaporization.

The accompanying illustration represents a vertical section taken through the vaporizing chamber, the oil-feeding receptacle and the distributing-cone. The vaporizing or oil mixing-chamber is preferably located below the combustion chamber, only a portion of which is shown. The opening communicating with the combustion-chamber is closed by a disk-valve, which may be adapted to work automatically as in the case of the ordinary inlet-valve or by suitable connection with the engine.

The vaporizing-chamber is preferably cylindrical in form, and is provided with air-inlets at the bottom. Supported on the bottom of this chamber is a hollow conical frustum of a diameter at its lower end, equal to the inner diameter of the bottom of the chamber, thus adapting it to receive the incoming air and bring it in contact with

the oil, which is fed on to the inner face of the conical chamber.

Supported on the top of the conical frustum is an annular receptacle which is preferably formed integral with the frustum. This receptacle is connected by a pipe with the oil supply, which is so elevated above the receptacle as to cause the oil to flow from said receptacle, through the outlets provided therefor, by force of gravity. The oil-outlet is located in the seat of a disk-valve, which, being in the form of a poppet-valve, closes the outlets when resting on its seat.

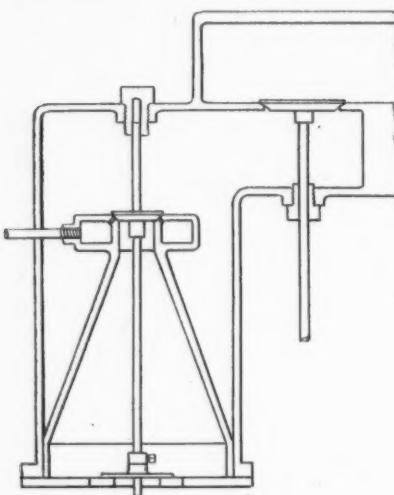
Extending through the center of the bottom of the vaporizing-chamber and throughout the length thereof, and fitting within a screw-plug inserted through the top of the chamber, is a rod mounted to have a slight reciprocating movement and upon which are secured the valve for controlling the oil-feed openings, and a flat disk-valve which has its seat on the bottom of the vaporizing-chamber over the air-inlets, but only partially closing them. This valve is loose on the rod, and has a slight vertical play, limited by a collar adjustably secured to the valve-rod.

The conical walls of the mixing-chamber are provided with a number of perforations formed horizontally therein for the purpose of increasing the angle which the air-currents must take in entering the inner chamber, by virtue of which angle greater resistance is made to the air currents and the oil more thoroughly exposed to them. The pressure of the oil in the annular receptacle is regulated by a suitable valve located in the supply-pipe.

In the operation of this carbureter, on the suction stroke of the engine, the valve-disk covering the passage between the combustion chamber and the carbureter is opened, allowing the suction of the piston to be exerted through the carbureter, thus drawing air through the air-inlets, which raises the valve disk covering them, and in so doing raises the valve-rod and the valve governing the oil-inlet. The force of the air pressure will be sufficient only to effect an instant rising movement of these valves when from gravity they will immediately seat themselves. During the rising and closing of the oil feed-valve, which will occur synchronously with the suction stroke of the engine, the oil will be fed from the annular recep-

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tacle, and thence down the inner wall of the conical chamber. The air entering through the opening at the bottom is thus not only brought into contact with a large surface on which the oil has been spread, but is



choked by the converging sides of the chamber and caused to escape through the perforations therein with sufficient force to atomize the oil and make the vaporization rapid and thorough.

To Burn Low Grade Oil

The provision of a burner capable of consuming oil of low grade to the satisfaction of users of automobiles has been taken in hand by James A. Mason, of Philadelphia, to whom a patent has been granted on a burner for the purpose. It is needless to go over again all the details of the advantages a successful burner of this kind would possess. The greater heat of the oil, the lower price and the facility with which it may be obtained, even in the smallest town, are all in its favor. Mr. Mason's device may be called a battery of burners, the body of which may be cast in one piece or joined, as desired.

In the accompanying drawings, Fig. 1 is a sectional view of a double burner of this design, but only one of the burners proper is shown complete. Fig. 2 is a transverse sectional view on the line $\alpha\alpha$ of Fig. 1. Fig. 3 is a view on the line yy of Fig. 1. Fig. 4 is a detail view of the self-cleaning strainer. One represents a retort, comprising a casting having a serpentine passage

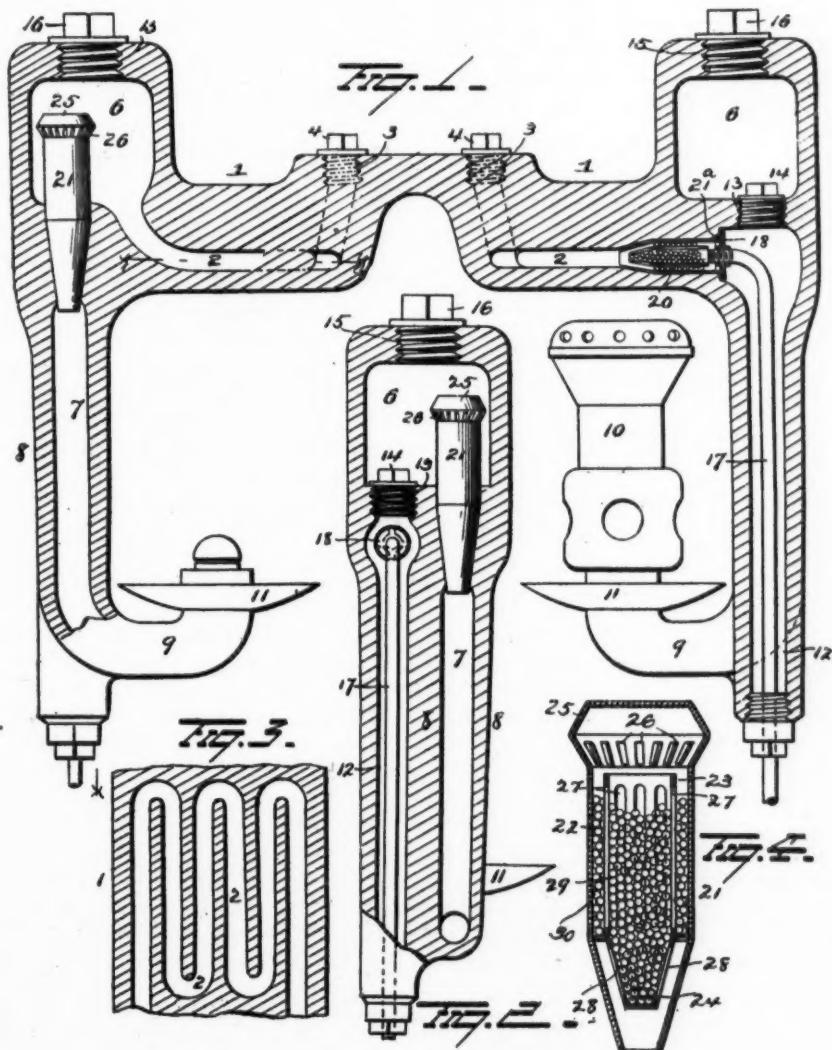
2 therein to afford an extended area for the oil during the vaporization thereof. One end of the casting 1 of the retort is provided with an opening 3 for the removal of the core, which forms the serpentine passage, and this opening is closed by a plug 4. The retort is provided at one end with a dome 6, with which one end of the serpentine passage communicates to convey vapor thereto, and this dome communicates with a duct 7, made in a depending leg or casting 8. At its lower end the duct 7 communicates with a curved pipe 9, which terminates below the retort 1 for the reception of a burner 10 of any preferred form of construction, and this burner is provided with a starting-cup 11. The depending leg or casting 8 is also made with a channel 12. The core by means of which this channel is formed can be readily removed through an opening 13 in the bottom of the dome, which opening is closed by means of a plug 14. The core by which the vapor-chamber in the dome is formed can be removed through an opening 15, and this opening is closed by a plug 16. The openings 13 and 15 also serve to permit the assembling of the parts. The oil-pipe 17 is passed through the channel 12, through the opening 13, through the dome, and out through the opening 15. A collar 18 is then screwed on the upper end of the pipe 17, and then a self-cleaning strainer 20 is screwed on the end of said pipe. The pipe is then drawn back through the dome and bent over, so as to cause the end of the strainer to enter one end of the serpentine passage 2 of the retort 1, after which the collar 18 is screwed up against the shoulder 21a on the retort, as shown in Fig. 1. The plug 14 is then placed in position to effectually close the opening 13. A self-cleaning strainer 21 is placed loosely in the upper end of the vapor-duct 7, and the opening 15 serves as a ready means for permitting the insertion of said strainer. After the strainer 21 shall have been placed into position the opening 15 will be permanently closed by the plug 16. The self-cleaning strainer 21 comprises a shell 22, provided with a conical end portion which projects into the duct 7, and a smaller shell 23, disposed within and spaced from the shell 22, said shell 23 also having a depending conical portion 24. The shell 22 is provided with a hood 25, having a closed top and provided in its wall below said closed

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top with slots or openings 26 for the admission of vapor from the dome 6. The inner shell 23 of the strainer is provided with a number of slots or openings 27, and the conical lower end 24 is also made with slots or openings 28 to facilitate the passage of vapor. Shot 29 is placed in the shell 23 sufficient to partially fill the same, and shot 30 is also placed in the space between the shells 22 and 23, so as to only partially fill said space. From this construction and arrangement of parts it will be seen that the vapor will be properly strained as it enters the vapor-duct 7, and that the strainer will be effectually prevented from clogging, be-

cause the vibration of the vehicle will cause a constant agitation of the shot, which will result in removing any sediment which might take place in the strainer. The strainer 20 between the oil pipe and the retort is the same in construction as the strainer 21, with the exception of the hood, (which is omitted from the strainer 20,) and therefore a detail description of the oil-strainer would be a mere repetition of the above description of the strainer 21.

In the drawings are shown two burners made in a single casting. In Fig. 1 the section is so taken through the twin burners that the oil-inlet to the retort is shown in



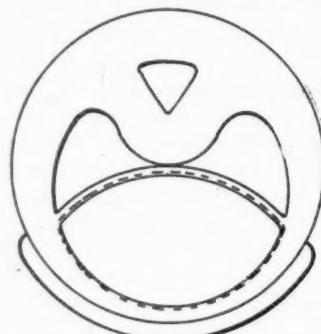
LATE EFFORTS OF DESIGNERS.

one, and the vapor-outlet from the retort to the dome is shown in the other.

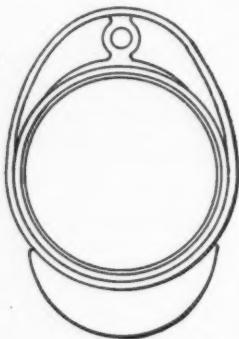
An Armored Tire

W. J. Wittmann, of Rochester, N. Y., is the designer of a pneumatic tire of the single tube pattern, the tread of which is protected by an armor of vulcanized rubber. This armor consists of four parts, while the core B, is of pure unvulcanized rubber, and the side pieces C C, are of pure rubber dipped in bromin or otherwise treated to slightly coat or vulcanize them. These side pieces fit snugly upon the sides of the stay A and its flanges, and also reach beyond the edges of the flanges upon the peripheral surface of the tube, the latter as well as the side pieces and the top of the stay being of the ordinary inflatable type. The stay and side pieces C form an armor protecting the outer portion of the air-containing tube from punc-

construction of which is such as to in a great measure provide against puncture of



ture, and tests are expected to prove that they do not seriously interfere with the flexibility of the tire.



ture, and tests are expected to prove that they do not seriously interfere with the flexibility of the tire.

A Combination Tire

The latest effort in the direction of a resilient tire, depending, to a certain extent, upon inflation, but still designed to be immune from collapse by puncture, is the invention of F. W. Skinner, of Valley Falls, Rhode Island. The illustration is of a transverse section of this tire, the structure of which consists of a solid rubber body of the form shown. Across the chamber is a flexible diaphragm, which constitutes, together with that part of the tire adjacent to the rim, an air-chamber adapted for inflation in the usual manner. When the tire is inflated, the diaphragm takes the form shown in the illustration, thus supporting the outer or tread portion of the tire, the

Has Been Granted a "Cover-All"

Alden E. Osborn, of New York, has just been granted a patent whose purpose, apparently, is to thoroughly cover the location of an equalizing gear within one of the driving hubs. In the introductory explanation a patent issued to A. L. Riker is mentioned, wherein the gear comprises a hollow driving axle, a shaft turning freely inside thereof with the road wheels mounted one to turn on the hollow axle, and the other fastened to turn with the shaft inside of the axle, and a compensating gear connected with and driving the wheel first mentioned. The criticism directed against this gear is that one of the road wheels is carried on the shaft which turns within the hollow axle, such shaft bearing the major portion of the strain of the wheel, which itself has a slight bearing on the tubular axle. Mr. Osborn claims that this condition places an undue strain on the rotating shaft and prevents an even and effective action of the parts, and that his invention seeks to overcome this disadvantage, which end he attains by mounting both of the wheels wholly upon the hollow axle so that said axle bears the entire strain of the wheels, and by effecting between one of the wheels and the shaft which is within the hollow axle a connection merely sufficient to transmit movement from the shaft to the wheel. Ostensibly with the object of covering this particular arrangement of parts, the specifications are arranged to cover about every possible form of differential gear to be contained within one of the hubs.

LATE EFFORTS OF DESIGNERS.

Eleven distinct designs are shown, and it will require considerable time and thought to devise a hub-contained gear that will not interfere with some of them.

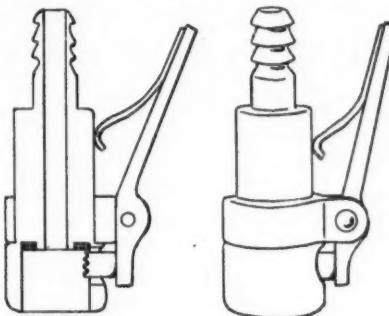
Sparking Device for Two Cylinders

In the generally-accepted arrangement of the sparking device for two-cylinder engines, two coils are used, which are alternately put in action by the operation of the contact-breaker. We are indebted to the Autocar for the following arrangement, whereby but a single coil is used. This was described in answer to a correspondent who asked for instruction in the matter of fitting a sparking device, using but one coil, to a two-cylinder De Dion engine and is shown as adapted to the sparker of that machine. However, almost any form of contact breaker could be readily adapted to the purpose. The distributor, whereby the secondary current is directed to either of the sparking-plugs, as desired, is operated by the same shaft as the contact breaker and might be advantageously placed between the latter and the engine frame, the shaft being sufficiently elongated to meet the requirements. As the distributor operates in the secondary or high tension circuit, much care will be required in thoroughly insulating it from all parts of the engine. The cam should be insulated from

side and the cranks set at 180 degrees. In the matter of wiring one terminal of the contact breaker is shown grounded to the motor frame, as is one terminal of the battery. A three-terminal coil is shown, and if a four-terminal coil should be used, the other secondary terminal should also be grounded.

A Handy Pump Connection

A. Klein, of 453 Broome street, New York, is placing on the market a pump connection which is one of the handiest we have seen. The working of this device may be readily

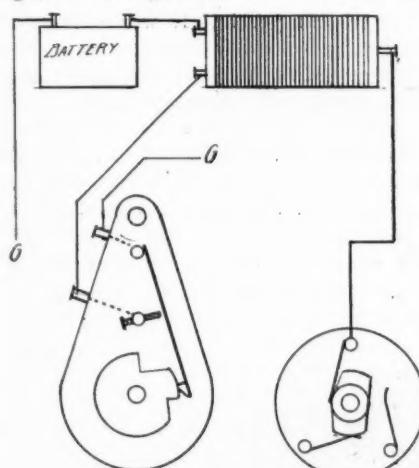


understood from the accompanying illustration. After engaging the lug on the lower end of the lever, the connection may be given a turn to the right, in order to assure a close connection between the valve-stem and the rubber washer.

An English Muffler

One of the greatest objections to the gasoline motor is the noise of the exhaust. In the French carriages comparatively little attention is paid to this, with the result that a great many of them announce their coming well in advance. The mere matter of silencing the exhaust is comparatively easy, but trouble is caused by back pressure which, in some cases, is sufficient to seriously reduce the efficiency of the motor. Devices have varied in style from a cast-iron box filled with steel turnings to a complicated system of nested tubing and a multiplicity of perforated baffle-plates and wire screens. The variance in size is equally great, and some of those in use on the heavy gasoline carriages being from 3 to 4 feet long and from 6 inches to a foot in diameter. Sometimes the smaller and less cumbersome devices give results superior to those more complicated.

An English firm has just made a muffler

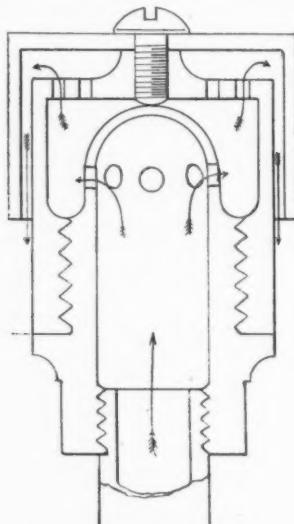


the shaft by a bushing of porcelain or some equally non-conducting material.

The distributor and the cam of the contact breaker are arranged for a two-cylinder engine, with the cylinders set side by

LATE EFFORTS OF DESIGNERS.

which, from appearances, should be all that is desired in the matter of compactness and weight. It is said to be equally applicable to gasoline or heavy oil engines. It is made of aluminum, which in addition to lightness is said to give excellent results on account of its lack of resonance. It is extremely simple in construction, consisting merely of three castings and a binding-screw. The construction is clearly shown in the illustration, which is a sectional view. The direction of movement of the exhaust gases is shown by the arrows. It is stated by those



who have seen the muffler in operation that it is so effective that when attached to a light engine running at about 1,200 revolutions per minute it was supposed by the observer that the exhaust was led by pipe to the outside of the workshop in which the engine was running, while as a matter of fact, the muffler was but a few feet from him. It is claimed by the manufacturers that by actual test the loss of power, owing

to back pressure, does not exceed 1 per cent, which, considering the results in the matter of silencing the exhaust, is truly remarkable. The muffler is made by Cloud & Co., of London.

The Value of Graphite

In a monthly pamphlet issued by the Dixon company appears the following interesting information:

It is claimed by good authorities, and the statement is very likely correct, that the temperature attained by gas exploded in the cylinder of a gas engine is from 2000 degrees to 3000 degrees Fahr., depending mainly upon the compression experienced by the gas before the explosion. It is because of such high heat that satisfactory lubrication of gas engine cylinders has been impossible where oils alone have been used. The employment of a finely pulverized flake graphite has produced such satisfactory results that the attention of gas engine users may profitably be called to some of the experiences.

A Pennsylvania company had a gas engine at Sharon, Pa., running a pump, and the man that had charge of it allowed the lubricator to run dry and cut the piston, piston rings, and cylinder. The makers of the engine said the cylinder would have to be sent to the shop and bored out and a new piston put in. It was a busy season and the company could not do without water so got some of Dixon's finely pulverized graphite and commenced to feed it into the cylinder through the suction pipe with the air and gas, with immediate relief. After about two weeks the engine was running smoother and using less gas than ever before. The engineer later took the engine apart and every place that was cut was as smooth as glass.



ANNUAL MEETING OF THE A. B. C.

New York, Oct. 8.—(Special Telegram.)—All of the uncertainty relative to the movements of the American Bicycle Co. was removed this morning when the annual meeting of the stockholders took place. If there has been any renewal of friction between the Coleman and Pope interests it was not allowed to appear on the surface, except insofar as it might be indicated by the election of directors and officers. Under the by-laws a certain number of directors retire each year, but are eligible for re-election for three years. The retiring directors were Messrs. Lozier, Featherstone, Barber, Stearns and Crawford. Of these the first three were re-elected and the others replaced by Messrs. Bromley and Unzicker.

The directors met in the afternoon and went through the formality of electing officers. The information wired last week to the effect that there would be but one vice-president and that one Mr. Bromley proved correct. The positions of second and third vice-presidents were abolished, shutting out Col. Geo. Pope and Mr. Merves. The former will become president of the Auto Street Sweeping Co. and the latter will be assistant to the president of the A. B. C. The re-election of Mr. Coleman as president and Mr. Dickerson as secretary and treasurer followed as a matter of course.

Mr. Coleman stated in his report that all present brands of bicycles, with one or two unimportant exceptions, would be retained and that the prospects were satisfactory. He admitted that the sale of bicycles for the season had been disappointing, but this was attributable to some of the worst weather on record during March, April and May.

The automobile department, Mr. Coleman said, was developing satisfactorily and had reached a profit-making basis. The company was producing in large numbers both electric and steam vehicles and would soon be ready to say the same thing of a gasoline carriage. An electric delivery wagon was in course of preparation and would be ready in a few months, while steam trucks were already being built at the Toledo factory.

As to other investments the president reported that the Automobile & Cycle Parts Co., in which the A. B. C. holds a large interest, was already on a dividend paying basis. The National Battery Co. had more orders than it could fill in six months, while the American Wood Rim Co., in which the A. B. C. holds a controlling interest, had paid a dividend of 10 per cent. The Auto. Street Sweeping Co. promised a profitable business beside offering a large amount of work to A. B. C. factories. This accumulation of industries would result in great economy to all of them.

The treasurer's report showed the company to be possessed of assets of about \$40,000,000, made up, in round numbers, as follows: Plant investment, less \$1,000,000 depreciation, \$27,500,000; cash, \$380,000; accounts, \$4,000,000; investment securities, \$4,000,000; merchandise, \$4,000,000.

The liabilities were shown to be as follows: Outstanding bonds, preferred and common stock, \$36,500,000; accounts and notes payable, \$2,250,000; mortgage, \$30,000.

ASSETS.	
Plant investment	\$28,546,851
Less depreciation	979,026
Net plant investment	\$27,567,824
Cash	380,706
Accounts and notes receivable	3,934,153
Investments in securities	3,843,535
Merchandise on hand	3,948,440
Unexp'ed insurance	53,786
Total assets	\$39,728,506

LIABILITIES.	
Debentures	\$10,000,000
Less retired March, 1901	500,000
Balance	\$ 9,500,000
Preferred stock	\$10,000,000
Less amount in treasury	705,100
Balance	\$ 9,294,900
Common stock	\$20,000,000
Less amount in treasury	2,298,500
Balance	\$17,701,500
Accounts and notes payable	2,245,843
Factory bonds and mortgages	30,000
Surplus on July 31, 1901	956,262
Total	\$39,728,506

The profits on the product of the current year had been \$850,000 and for the 10 months ended Aug. 1, of last year, \$855,000. There has been paid, in interest on bonds, last year and this, \$750,000, leaving a surplus of \$956,000.

CYCLE SPORT AND TRADE

It is reported that the palatial quarters on the 22nd floor of the Park Row building are to be abandoned for something less pretentious. The Rambler building, on 8th avenue, is to be closed. It seems to be settled conclusively that Albert Pope, Jr., is out for good.

The New York salesrooms are to be concentrated at the Warren street branch. There will be three sales departments, one for New York and east, in charge of Mr. Walker, formerly of Hartford; one in Chicago, which will cover the central territory, in charge of Mr. Matlack, and one in San Francisco, to take care of the Pacific coast trade, under the management of Mr. Hutchinson. Other economies are contemplated, which, according to the estimate of the officers, will result in a saving of outlay of a half a million dollars.

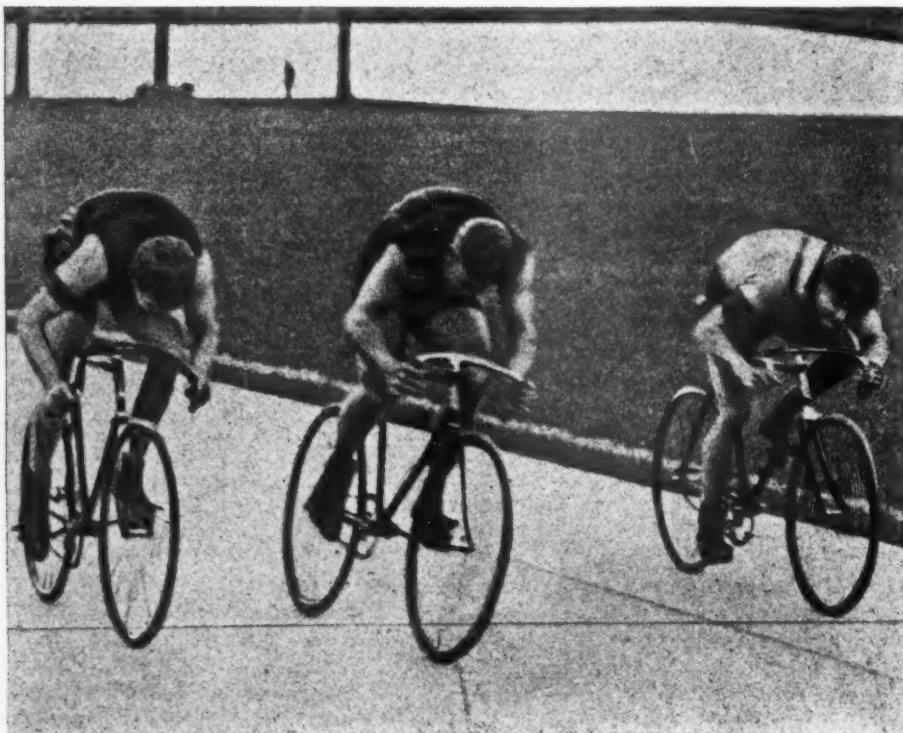
Those Extraordinary Frenchmen Again

The poor of Paris were made \$5,000 better off by a cycle race meet on Sept. 23. The riders divided over \$2,500. There were

25,000 people present. The grounds were policed by one inspector, fifteen lieutenants, two division officers, 150 policemen, 125 dragoons and twelve gendarmes on horseback. Truly great are the French people when anything in the line of sport is to be decided.

"Every true sportsman goes where there is to be seen something better than he has seen before," says a correspondent of *MOTOR AGE*. "The race was the final of the Grand Prize of Paris with its attendant semi-finals, the preliminaries having been decided previously. In the semi-finals Ellegaard and Arend won the first two. Then came Jacquelin, Vanden Born and Rutt, the latter a 17-year-old German boy who remained in last place until the last turn. Then, having passed Jacquelin he went after Vanden Born, came up with him inch by inch, and won by less than one-half a wheel. I was more than astonished at the fine work of this lad."

"After a little entreacte, the bell rang again and the winners, two representing



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ONLY when frictional rivet surface and tensile strength are large in proportion to the working load.



NO. 155 FOR LIGHT RUNABOUTS

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Outwears
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THE GOODYEAR TIRE AND RUBBER CO.

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LARGEST TIRE MAKERS IN THE WORLD

CYCLE SPORT AND TRADE

Germany and one, Ellegaard, representing Denmark, made their appearance. Slowly they started with Arend in the lead. During the second lap Ellegaard tried to get first place while Rutt, whom I was following with the greatest interest, stayed wisely in third place. At the bell Arend went faster and soon it was a regular sprint. Entering the last turn Ellegaard began his effort, but Arend retained the lead. Now the Dane succeeded in passing. Still little Rutt had not begun his effort. But at 160 meters from the red line he started. He first passed Arend, then in a magnificent jump, attacked the Dane, and inch by inch gained ground. Finally the Dane made a last effort and won by a quarter of a wheel. It was the closest finish ever known in the great prize or any other big race between the three starters.

"While Ellegaard was wildly applauded the honors of the race rest with this wonderful little German lad, almost unknown the day before and now considered the coming man of Europe.

"They speak a good deal of late of your Kramer, who won the championship. He would be met with as much interest by our crowds as the major. The same about some of your middle distance riders. A rider like Walthour could make good money over here."

Increase of Cycle Exports

The treasury department has just issued a statement of the American cycle exports to the end of July. In that month the value of bicycles shipped to the United Kingdom was \$37,140, as against \$25,396 in July, 1900. For seven months, ended July, 1901, the total of the cycle exports to that country was \$354,196, as compared with \$348,223 during a similar period last year.

For the one month named the exportation of bicycles to France was even more satisfactory than that to England, cycles to the value of \$23,030 having been shipped there during July, 1901, as against only \$7,202 in the corresponding month of 1900. For the first seven months of this year, though, the total exports to that country were slightly less than those of 1900.

Cycle exports to Central America and British Honduras have never been large, but in July they exceeded by about \$300

those of the same month last year, and for the period ending on July 31 last they exceeded the exportations of that period in 1900 by nearly \$3,000.

A striking increase is noticeable in the shipments to China. In July, 1901, the bicycles sent to that country were worth \$28,849, whereas, in July, 1900, cycle exports amounted to only \$1,914; and in the first seven months of this year the shipments to China represented a value of \$41,991, as against \$16,294 in 1900.

Although the cycle exports to Africa in July of this year were somewhat less than those of the same month in 1900, the total value of the shipments for the seven months exceeded by almost \$20,000 the value of last year's exports for that term, this year's figures being \$46,780.

Increases are also recorded in the exports to San Domingo, British Australia, British North America and the British East Indies; while the statistics show little change in the value of the shipments to Cuba, other islands of the West Indian group and parts of Asia and Oceania.

It is true that the value of the exports to some other countries still continues to decrease. Germany, for example, imported American bicycles to the value of \$160,866 during the first seven months of this year, whereas during the same period of 1900 her imports amounted to \$303,715.

In South America, also, the sales of bicycles made in the United States are not what they should be, and this is conspicuously the case in Argentina and Brazil. In these two countries, as in other parts of South America, bicycles of German make appear just now to be the most popular; but this state of things is due, for the most part, to the activity manifested there by the German cycle agents and the lack of push exhibited by the representatives of American manufacturers.

Wants Pacific Coast Agencies

On one of his periodical visits to eastern territory Edward Mohrig, of San Francisco, reached Chicago Tuesday, proceeding the same evening to Buffalo and thence to New York. Mr. Mohrig comes east on business bent and in search of opportunities to add to his line for 1902 anything profitable in cycle accessories. He has already secured the representation of the Great Western

JOLIET DRIVING CLUB

Automobile Races

On the Club's One-Mile Track, October 18 and 19

LIST OF EVENTS

Friday, Octocer 18, 2 p. m.

- | | |
|---|---|
| 1. Five miles, gasoline, 1,000 pounds and under. | 5. Five miles, steam racers. |
| 2. Ten miles, gasoline, between 1,000 and 2,000 pounds. | 6. Two miles, motor bicycles. |
| 3. Ten miles, gasoline, weight unlimited. | 7. Three miles, motor tricycles, under three horse power. |
| 4. One-half mile, steam, stock carriages. | 8. One mile, flying start, all classes except racers, under 1,000 pounds. |

Saturday, October 19.

- | | |
|---|---|
| 1. Road race, Chicago to Joliet, starting at 55th Street and Western avenue. First steam vehicle will start at 11 a. m., gasoline carriages at 11:30 a. m. and the heavy racing carriages at noon. There will be an interval of 5 minutes between the starting time of vehicles. The race will finish on the track, each competitor making one lap. | 3. Ten miles, gasoline, under 1,000 pounds. |
| 2. Five mile, gasoline, between 1,000 and 2,000 pounds. | 4. Twenty-five miles, gasoline, weight unlimited. |
| | 5. Five miles, steam, stock carriages. |
| | 6. One mile, steam racers. |
| | 7. Three miles, motor bicycles. |
| | 8. Two miles, motor tricycles, under three horse power. |
| | 9. One mile, flying start, all classes except racers, under 1,000 pounds. |

Arrangements will be made for a special train to accompany the road race.

HANDSOME SILVER CUPS

will be awarded to first and second in each event.

Record trials for any who desire to make them at the close of each day.

Weights to include vehicle and full equipment, exclusive of passenger or passengers.

Stock machines to be equipped as in regular use except that the owner may dispense with such articles as will lighten the vehicle. No appliances to be allowed except such as are in regular use by the owner.

Bicycles and tricycles not to be allowed to start except in the classes set apart for them and the one-mile flying start for vehicles of all classes.

No limit to the weight, power or equipment of racing vehicles.

We have every facility that capital and experienced motor-vehicle associates can command. No expense shall be spared to make it a high-class meeting.

Entries close Oct. 15. There will be an entry fee of \$2.00 for each event. Apply for further details, entry blanks, etc. to

The Joliet Driving Club

WM. C. CROLIUS, Chairman, CHAS. H. CONKLING, WM. CONLON, CHAS. E. WOODRUFF,
Automobile Racing Committee.

CYCLE SPORT AND TRADE.

Mfg. Co. for the entire Pacific coast and desires to add manufacturers' agencies in all lines pertaining to the cycle industry. He may be addressed at this office.

Mr. Mohrig's report of the cycle trade in the far west shows that it is far more encouraging than in some of the eastern cities. He conducted a profitable business during the season just closing. Little, he says, has been done in the matter of automobiles and motor cycles. L. H. Bill, formerly with the Thomas company, is in San Francisco, fired with motor cycle enthusiasm and preparing to manufacture there. The Holley motor bicycle is also represented, by L. James Holley. Mr. Mohrig fears that the hills of California will have a detrimental effect on the sale of machines of this class.

Robl Wins a Championship

The third annual long distance championship of Europe was run at Leipzig on Sept. 22 before 14,000 spectators, the largest assembly since Major Taylor was in that town. Robl, who won the 24-hour race in Berlin on the previous week, made a splendid race and came near breaking both the hour record, of which he is already the holder, and that for 100 kilometers, the distance of the race. From the seventieth until the end all German records went down and just when world's records were in sight an accident to his motor happened. Robl covered the 100 kilometers in 1:33:37 3-5. The world's record is 1:32:53 4-5.

Sunday at Vailsburg

Newark, Oct. 7.—A ten-mile handicap on a quarter-mile track was attempted as a feature at Vailsburg yesterday afternoon. The jumps were made 100 yards each up to the 300 mark and the limit men were placed at 380 yards. There were 23 starters. Only two, Kramer and Fisher, were on scratch and they had a merry chase to catch the hundred yarders. This happened at two miles; but it was three miles before this bunch of eight caught the twelve in advance. Lap prizes were offered and this kept the leading bunch going. Maya and Leander jumped the bunch in the second mile and for three miles struggled to get away with the race. Again in the seventh mile Maya jumped away on his

own hook and held the lead for a mile alone until he was pulled down by Kramer. In the final brush Kramer won by a length from Freeman with Collett and Butler third and fourth, inches behind. The time was 23:12 2-5, as against Lawson's record of 22:35 2-5 made at Providence; but yesterday at Vailsburg there was a blustering October gale blowing.

The other professional event was the annual Priscilla Handicap at a quarter of a mile. In the final Kramer was at scratch; Collett, Freeman and Fisher at 10 yards; Floyd Krebs at 30 and Stiles at 35. It was a stiff brush all the way, the men finishing inches apart. Fisher won in 29 4-5, with Collett second, Kramer third and Krebs fourth.

Two record trials were on the cards; but the stiff wind made record figures an impossibility. Joe Nelson tried to lower Walter Smith's 7:53 for 5 miles made at Buffalo last August and scored 7:59 4-5, easily under record time considering the handicap of the gale. Albert Champion went against his own 1:15 for a motorcycle mile twice, scoring 1:15 2-5 the first time and 1:16 1-5 the second. He will try again next Sunday.

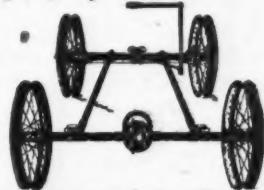
The amateur handicap fell to the scratch man Billington with Dove (20) second, and Merkert (20) third. It was football weather, but 4,000 spectators attended and racing will be continued to election day.

The shake-up in the affairs of the American Bicycle Co., preparatory to the general meeting, has been extended to Westfield, Mass., where the Cleveland factory is located. C. J. Moore, who has managed the plant, and Harry Lozier have both been dropped and the office force discharged, the department going to New York. Report has it that at the general meeting the directors hope to show the stockholders how they will save a quarter of a million dollars in operating expenses next year.

The Brennabar Cycle Co., of Germany, has issued a statement showing that between Jan. 1 and Aug. 15 it produced 33,075 bicycles, as against 34,039 last year. It expects to run ahead of last year before the season closes. Another German factory shows a production of 17,645, as against 16,500 last year.

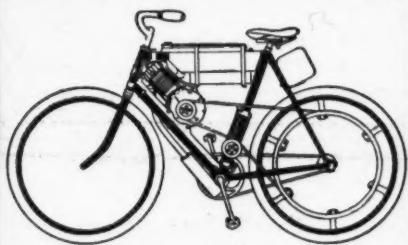


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FOR AUTOMOBILES

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INDIANAPOLIS, IND.

A Foot-
Power
Lathe and
Outfit -
of Tools



25¢ Full Descriptive Catalogue Free on Application.

W. F. & JNO. BARNES CO., 233 RUBY ST.
ROCKFORD, ILL.

Our No. 5 Lathe is a right and left-hand screw cutting lathe, swings 11 inches on face plate; 34 inches between centers. Is back-gearied and has hollow spindle. Has set-over tail-stock and swivel tool carriage for tapering and boring,

SPECIAL OFFER!

The list price of No. 5 lathe is \$90. We will furnish the lathe with set of slide rest tools, three lathe dogs, 5-inch chuck with two sets of jaws, lathe arbor and set of Morse twist drills $\frac{1}{8}$ inch to $\frac{1}{2}$ inch by 32nds, in all amounting to \$110, for \$90 cash. Goods carefully boxed and delivered on board cars, Rockford. This gives the best lathe made, with full equipment of tools, for less money than you can buy an inferior machine.



FROM CORRESPONDENTS

Milwaukee, Wis., Oct. 5.—To the Editor: There is a great deal of skepticism displayed regarding a new and better scheme of performing a certain duty, where this scheme is to take the place of a method from which considerable success has been obtained. This is especially true in Europe, but it is also quite evident in America. The majority of gas engine makers are slow to take hold of the jump spark system of ignition. Now that motor-cycles have proven how practical this system of ignition is, many people are beginning to take hold of it and with it supersede the old hot tube and wipe spark system of ignition.

Not long ago we were requested to equip a 10-horsepower stationary gas engine with the jump spark outfit, by a prominent gas engine dealer in the city. When he saw the character of the spark, he shook his head and said he would have nothing to do with it, because it would never ignite the charge in a large engine. In this case he was entirely wrong, for we are now equipping stationary engines with the jump spark outfit and find they give excellent satisfaction. By advancing the spark more speed can be obtained from the engine and therefore it can be worked more economically.

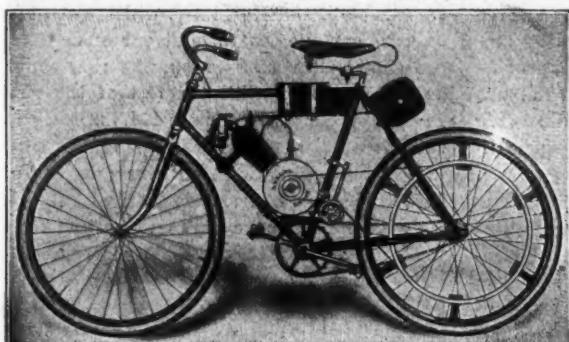
The jump spark system of ignition has been applied successfully to a number of Winton rigs around Milwaukee, notably those owned by Geo. Odenbret, of this city, and Emil Estberg, of Waukesha, Wis. On these rigs the make and break was used, having two tremblers adjusted so that if for any cause the spark or circuit does not go through one, it will revert to the other. The coil used had no trembler, and therefore placed less strain on the batteries. As might be expected the engine answered to a lead very promptly and a correspondingly greater speed was obtained. Al-

though no official tests have been made, the owners are confident that they can obtain from 8 to 10 miles per hour more out of their rigs now than when operated by the old wipe spark mechanism.

The wipe spark mechanism was not removed, but allowed to remain intact. This gives an alternative, so that if one system fails to ignite properly, the other is pretty sure to be ready. However, in two months' trial, it was never found necessary to abandon the jump spark outfit. Although this is somewhat out of our regular line of business, we are prepared to equip a Winton rig with a jump spark outfit if so desired.—Yours, etc., Merkel Mfg. Co.

The Duryea Carriages

Reading, Pa., Sept. 28.—To the Editor: We were so uncertain about getting a machine ready for the endurance contest, that we entered but one, which had only a four-day coat of paint, and was otherwise rushed through. We managed to get out another, without top or guards, which the writer drove from here to New York and from there to Buffalo and back to Batavia, making a total of 700 miles. These machines went through the endurance run without trouble of any kind, excepting that due to improper lubrication. Our regular oil failed to reach us, and did not catch up with us until at Syracuse, on which account our engine bearings gave trouble, and the thin oil used got on the fly wheel and interfered with the driving pulley of the magneto. This was a little but serious trouble, and delayed us considerably. After Syracuse, where we received a supply of our oil, our trouble ceased. When you remember that only 50 per cent of the vehicles starting arrived at Rochester, you will see that our record of pushing through the two machines was a good one. We had but one man to a



THE MERKEL MOTOR-CYCLE

Simplest on the market.

SINGLE LEVER CONTROL

Speed variation 4 to 25 miles per hour.

PRICE

\$200

Agents wanted. Write for Catalogue of Motor Cycle and equipment.

MERKEL MFG. CO.,

Dept. A. - - - Milwaukee, Wis.

Demonstrated Fact The Best Plug of the Year



We are making standard $\frac{3}{8}$ -inch pipe size plugs for some of the largest manufacturers. Why not you? Write for circular. Price \$2.00 each, \$15.00 per dozen. We are also equipping the best American gasoline vehicles with Dow coils, batteries, etc., also motor cycle manufacturers large and small. Quality counts and our prices range accordingly. No cheap goods of any kind. Now ready for delivery: air-cooled motor castings, $\frac{1}{4}$ and 3 horsepower sizes at \$12.00 and \$25.00. Porcelain insulators 20 cents. Write for circulars on auto supplies of all kinds.

THE P. J. DASEY COMPANY,

160-162 E. Washington St.,

CHICAGO, U. S. A.

RELIANCE SAFETY WATER COLUMN

"Low Water Alarm for Steam Carriages"

Low Water in the boiler of a Steam Vehicle is particularly dangerous and expensive.

The Reliance alarm is light, strong, and easily attached. It gives the alarm before the water gets too low. Made on the same principle as the celebrated Reliance Safety Water Columns, for stationary boilers, that have been on the market for 14 years, and of which there are over 35,000 in daily use. When you buy a new steam vehicle, insist that the boiler shall be protected by a Reliance Low Water Alarm.



SAFE! SURE!
SUCCESSFUL!

Bank of Sumner Sumner, Iowa, Feb. 25, 1901.

THE RELIANCE GAUGE COLUMN CO., Cleveland, O.

GENTLEMEN.—In reply to your favor of the 22d inst, asking how I liked my Low Water Alarm sent me a few days ago, I beg to advise that the same is working entirely satisfactory. I have attached it to my "Locomobile" under the seat and between the engine's muffler and the boiler. I find the space just large enough and the main braces of the carriage are just right to support the Column nicely. I have tested it in various ways and find that it will always give the alarm just as the water leaves the bottom gauge cock in my water column. I consider the alarm very substantially made, and it would seem there is nothing to get out of order or cause trouble. There is no doubt in my mind that it will save my boiler a scorching sometime in the future. Yours very truly.

Signed, J. F. CASS, Vice Pres.

RELIANCE GAUGE COLUMN CO., Sole Mnfrs.

Write for prices.

85 E. Prospect St., Cleveland, Ohio.

CHICAGO OFFICE, 79 LAKE STREET.



"THE DAYTON" BURNER

(Patent Applied For)

One-piece cast iron Burner. Can't warp or break; will not burn black or blow out. Pilot light burns constantly while carriage is in use. Generator and Pilot Light can be attached to other burners. Send for descriptive circular.

The Dayton Motor Vehicle Co.
1112 East Fifth Street,
DAYTON, OHIO

FROM CORRESPONDENTS.

machine, whereas some machines had three and four. We received no supplies of any kind from the factory after starting, excepting the cylinder oil mentioned, and did not load our machines down with supplies. We carried an extra tire from Poughkeepsie to Herkimer, but had no tire troubles at all, excepting a slight gash on the side of one rear tire. We did not change the insulation or clean the magneto brushes during the trip, and the magneto on the four wheeler was sparking just as nicely at Buffalo as when it started. We broke a chain, due to an overhard rivet, but this was quickly repaired.

Our record on Nelson Hill shows faster time than any other American gasoline machine, and we would have done better had the road been clear.

Mr. Duryea drove one of our vehicles from Reading to Philadelphia, to New York, to Buffalo and back again as far as Batavia where he was caught in a bad rain storm, making in all more than 700 miles before he put the carriage on the cars. The vehicle, by the way, was still in condition to run, and his trip from Buffalo to Reading was prevented only by severe rains and poor roads and his experience on the week preceding in the endurance run, where he was exposed to rain, mud, etc.—Yours, etc., Duryea Power Co.

Asks About New York Tires

Kalamazoo, Mich., Oct. 7.—To the Editor:—I am in need of a pair of new tires. Will some of the readers of MOTOR AGE who have had experience with New York vehicle tires please advise me as to their adaptability to a Locomobile? I have been advised that they were too stiff and heavy, even for the rear wheels of a vehicle of this weight. Is this so? Yours, etc., Herbert Green.

Fosters in the Test

Rochester, N. Y., Oct. 5.—To the Editor: We notice in your issue of the 26th, in commenting on the endurance run that you claim one of our wagons lost three controls. We have noticed, in other publications, that the record of B 35 was not at all complete, but contented ourselves with the thought that the official figures would soon be in print and that we would get the credit which is our due. B 35 met with an accident be-

tween Fonda and Herkimer, which caused it to lose that one control, but our official record shows that this wagon was very much in evidence during all the rest of the run. From New York to Fonda is 201.3 miles, and this distance was covered in the official time of 12 hrs. 5 min., or at an average speed of 16.06 miles per hour.

From Herkimer we were on an equal footing with the rest, and made some very creditable runs. We covered the 48 miles from Syracuse to Lyons, through the Savannah swamps, at an average speed of 11.27 miles per hour. No one but the contestants and tourists who have made this trip under the same condition, can fully appreciate the terrible strains and wrenches which a machine must be made to endure in order to cover this stretch of road at a high speed.

We finished officially in Rochester, but both our wagons made the run through to Buffalo and returned to Rochester.—Yours, etc., Foster Automobile Mfg. Co.

Munger Tires Stood the Test

New Brunswick, N. J.—To the Editor: In your issue of Sept. 26 you state that the Holyoke touring carriage was fitted with Goodrich tires which came through in good shape, except for a cut in one tire. We wish to take exception to this, as the vehicle was fitted with Munger tires, and although it was the heaviest machine in the contest, weighing 3310 pounds, we are advised by Mr. Greuter that the tires came through in first-class shape, that he did not find it necessary to even use a pump on them, and that they are practically as good as new.

For your information we would also advise you that five of the vehicles starting in the contest were equipped with Munger tires, and of these, four finished with tires in good shape and without having had the slightest delay or inconvenience because of the tires. The fifth machine retired because of some accident other than to the tires.—Yours, etc., Munger Vehicle Tire Co.

Information for Buyers

Among the exhibits which Billings & Spencer Co., of Hartford, Conn., will show in its space at New York will be samples of the B. & S. automobile parts and steering equipment. The firm will occupy spaces 57, 58 and 59.

The establishment of Smith & Mabey,

ADVERTISEMENTS.



Dyke's Float Feed Carbureter

No. 2 and No. 3 suitable for engines from 1 to 12 and 12 to 40 h. p. We now make them of

BRASS OR ALUMINOID.

A. L. DYKE, Linmar Bldg. ST. LOUIS, MO.



A R B ROLLER BEARINGS

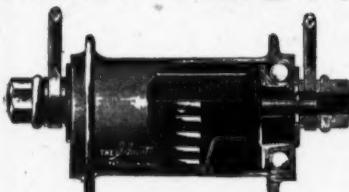
If you are not using the A R B you are not getting the greatest possible efficiency from your machine.

Send for circular.

AMERICAN ROLLER BEARING CO. Boston, Mass.

Western Dept.
K. Franklin Peterson
165 LAKE ST.
CHICAGO, ILL.

FIRST TIME PRIZE



Pullman
Road Race
July 4, 1901
Won on this

HUB

Won First
Time Prize
May 30th,
1901, in
Century
Road Race.

Reduced record, which stood for 4 years, by 30 minutes. Won first time prize at Como Park, St. Paul, Minn., July 13, 1901—100 miles. Time 5 hrs. 20 sec., best record in competition race. Substantiates our claims, doesn't it? For full particulars address

F. SCHMITZ & SONS, 580-584 Orleans Street, CHICAGO

CRESTMOBILE

PRICE
\$550

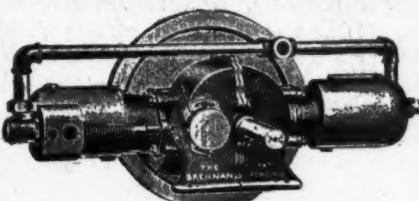


Agents
Wanted

CREST MANUFACTURING CO.

Cambridge, Mass.

The BRENNAN WATER-COOLED MOTOR



Manufactured 4, 5 and 7 H. P.

BRENNAN MFG. CO., SYRACUSE, N.Y.

Dietz Automobile Lamp

Burns kerosene 24 hours with one filling. A simple, efficient Lamp giving a fine light and which can be depended on to stay alight in spite of wind and jar. Especially suited for touring.

R. E. DIETZ COMPANY, - 37 Laight St., New York

GASOLINE MOTORS

For Bicycles, Launches, Etc. Our 3½ H. P. light Motors for Runabouts. Our Transmission Gear. All parts to build Automobiles, either finished or Castings. Carburetors and Mufflers.

MORGAN MOTOR CO.

50-54 Columbia Heights, BROOKLYN, N.Y.

STYLISH AND DURABLE

Lamps for Automobiles

GRAY & DAVIS

Amesbury, Mass.

SEND FOR CATALOG "B"

There is no SUCCESS like

KEATING MOTOR BIKE SUCCESS

KEATING WHEEL & AUTOMOBILE CO.

MIDDLETOWN, CONN.

MODERN CYCLE REPAIRS

ONE DOLLAR TO CYCLE AGE
OR MOTOR AGE SUBSCRIBERS

THE CYCLE AGE - CHICAGO

Sheet Steel Parts

FOR

Bicycles and Automobiles. Special stampings made from drawings or blue prints, all of a superior quality. Send for Catalogue.

THE H. A. MATTHEWS MFG. CO., Seymour, Conn., U. S. A.

ADVERTISEMENTS.

Broadway and 38th street, New York, American agents for the Panhard and other European machines, is a busy place these days. One day last week while a MOTOR AGE man was there three machines arrived in response to cable orders sent only 20 days before. The bodies were in the white and, like all the others imported by the firm, are finished in this country according to the buyer's personal requirements.

It is generally acknowledged that gasoline should be stored underground where it is kept cool and away from all danger of fire. The Gilbert & Barker Mfg. Co., of Springfield, Mass., appreciating the fact, has placed on the market a tank which should meet with ready sale among manufacturers and users of automobiles. The tank is made of galvanized steel, thoroughly riveted and soldered and absolutely air and gasoline tight. It is coated on the outside with coal tar, put on hot. All the castings and joints are above the liquid line. The tank is fitted with a fill pipe, pump pipe and brass pump, the latter being above ground. Several manufacturers have their tanks in use and are thus enabled to make better fire insurance arrangements.

Attention is called to the announcement of John R. Keim in the advertising pages of this issue. Mr. Keim, who operates the immense factory formerly owned by the Spaulding Machine Screw Co., at Buffalo, and has unexcelled facilities, is prepared to undertake anything in the line of production of motor vehicle parts and offers an engine for steam vehicles which has been tried for the last eighteen months and found successful.

Some of the eastern papers contained, on Sunday last, a four-column advertisement of the flotation of the Stearns Automobile Co., with a capital of \$2,500,000. Twenty-five dollar shares are offered at \$5.25, the amount realized to be applied to increasing the business.

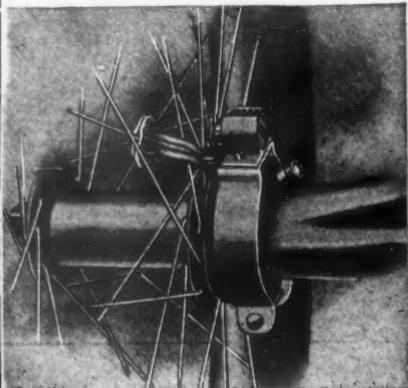
The Wabash Engine Co., of Wabash, Ind., which conducts an extensive business in the manufacture of gas engines for the use of farmers and others, is in the market for a plug and coil that will work with its product. It will be glad to hear from makers.

A factory is to be erected for the Kirk-Latty Mfg. Co., Cleveland.

When buying an Automobile see if it is equipped with a

VEEDER ODOMETER

If it is you may feel reasonably certain that its manufacturer pays careful attention to detail and it is a guarantee that he is not exaggerating the efficiency of his motor power or over-estimating his fuel capacity.



Odometer with band bracket Price **\$3 50**

The following leading automobile manufacturers have adopted the Veeder Odometer and offer it as a regular equipment without extra charge.

The Locomobile Co. of America, Bridgeport, Conn. The National Automobile & Electric Co., Indianapolis, Ind. The De Dion-Bouton Motorette Co., Brooklyn, N.Y. The St. Louis Motor Carriage Co., St. Louis, Mo. Milwaukee Automobile Co., Milwaukee, Wis. Electric Vehicle Co., Hartford, Conn. (Gasoline Carriages.) Rochester Cycle Mfg. Co., Rochester, N.Y. The Steamobile Co., Keene, N.H. Buffalo Electric Carriage Co., Buffalo, N.Y. Foster Automobile Co., Rochester, N.Y. The Kidder Motor Vehicle Co., New Haven, Conn. The Beardsley & Hubbs Mfg. Co., Mansfield, Ohio. The Aultman Co., Canton, Ohio.



**The Veeder
Mfg. Co.**

HARTFORD, CONN.
Makers of
Odometers,
Cyclometers,
Counters,
Fine Castings.

Odometer, only price \$3.00

Made for 24, 26, 28, 30, 32, 34, 36, 38, 40, 41, 42, 44, 46, 48, and 50 in. wheels.
16-page catalogue free.

ADVERTISEMENTS.

In the advertising columns of this issue E. M. Atkinson offers for sale the patents on a rigid bicycle carrier on which he has received testimonials from the Portland (Ore.) branch of the American Bicycle Co. and the Merrill Cycle Co. The carrier is reported to be popular in the northwest. The owner is desirous of making some arrangement quickly, as the foreign patents, except Canadian, must be applied for this month on account of the issue in this country.

MISCELLANEOUS

Advertisements under this head 5 cents per word first insertion; 3 cents per word each insertion thereafter. Cash with order. Express orders, postoffice orders or stamps received.

FOR SALE

FOR SALE—Second-Hand Steam, Gasoline, Electric vehicles. Guaranteed. A. L. DYKE, Linmar bldg., St. Louis, Mo.

FOR SALE—1 Complete set Steffy bicycle motor castings partly machined; aluminum crank case and cylinder bored. Cost \$11.00, yours for \$9.50. L. V. LASH, Bolivar, Ohio. ²

FOR SALE—Two 1901 Model Steam Locomobiles, run but very little, in fine condition. Will make bargain price on one or both. Address Box No. 87, Winona, Minn. ¹

FOR SALE—Brand new Locomobile, Model 08, with Victoria top; never run; listing at \$900. First check over \$650 takes it. Guaranteed as represented. EASTERN AUTOMOBILE & SUPPLY CO., Providence, R. I. ¹

FOR SALE—The Automobile Storage and Repair Co., 57 West 66th St., New York, have new and second-hand steam, gasoline, and electric carriages constantly on hand and have always some special bargains.

FOR SALE—Horses and Vehicles: One Waverly Electric Automobile, second-hand but as good as new, for two or four passengers; cost \$1200; will sell for \$650. Address, F. I. WILLIS, 34 Monument Place, Indianapolis, Ind. ³

FOR SALE—One "Locomobile" of the latest model. Has been run only 1200 miles. Has been in use since July 4th, 1901. Is fitted with a \$15.00 Solar gas headlight; \$15.00 pair Solar side lights; electric light for the waterglass; trap seat in the rear; just as good as new. Price, \$700.00. Address J. H. KINNEY, 34 Monument Place, Indianapolis, Indiana. ¹

WANTED

A GENT WANTED to purchase second-hand bicycles. Address INTERNATIONAL BICYCLE CO., Shanghai, China. ⁴

WANTED—Position, by first-class brazing hand; best of reference; 20 years experience. Address, J. GERZNER, care MOTOR Age. ¹

What is doing in AUTOMOBILISM?

All who are interested in that question should consult the
"Motor-Car World"

which each month reviews the progress of the new Locomotion throughout the World. Published at 186 Fleet Street, London, England. Annual Subscription, post free to the United States, one dollar.



Steam Boiler Feed and Air Pumps
Single and combined, for all Steam Automobiles
Cook Automobile Works, Wissinoming, Phila., Pa.

Catalogue Department

THE MOTOR AGE has established a catalogue department and will forward the catalogues of any or all advertisers on request.

The objects of this department are as follows:

1. To save the reader the trouble and expense of writing to each individual concern whose catalogue he may need.

2. To place advertisers in direct communication with prospective purchasers.

Applicants for catalogues will please state specifically the names of the concerns whose catalogues they desire and enclose stamps to cover postage.

Applications should be addressed to the Catalogue Department, MOTOR AGE, Monon Building, Chicago.

THE PIONEER LIMITED**FAIRMAUS TRAIN OF THE WORLD**

Chicago — St. Paul
Minneapolis

VIA

THE ST. PAUL ROAD.

(Chicago, Milwaukee & St. Paul Ry.)

Equipment and Service Unequaled.

Time tables, maps and information
furnished on application to

F. A. MILLER, General Passenger Agent,
CHICAGO, ILL.

Illinois Day at Pan-American

LOW RATES VIA. THE WABASH

On account of Illinois Day at the Pan-American Exposition, the Wabash will sell excursion tickets, good only in coaches or chair cars, at \$10.50 for the round trip from Chicago. Good to leave Chicago, Sept 14 and 15, and good to leave Buffalo until Sept. 22, inclusive. Four daily trains. Write for Pan-American folder. A copy of the latest popular song with music, "Wake me up at Buffalo," will be sent postpaid for six cents in stamps.

F. A. PALMER, A. G. P. A.,
97 Adams Street.

Excursion Rates to Buffalo**VIA THE WABASH LINE**

Sept. 8 to 12, the Wabash will sell excursion tickets Chicago to Buffalo and return as follows: Good fifteen days, \$11.10; 20 days, \$12.55; until Oct. 8th, \$14.50. Four daily trains with palace sleepers and free chair cars. Write for Pan-American folder. Send six cents in stamps and receive a copy of the latest song with music, "Wake me up at Buffalo."

F. A. PALMER, A. G. P. A.
97 Adams Street.

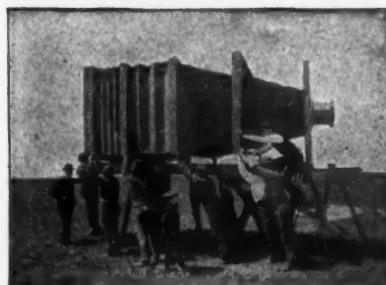
Faster than ever to California

CHICAGO & NORTH-WESTERN RAILWAY

THE OVERLAND LIMITED leaves Chicago 6:30 p. m. daily via Chicago Union Pacific and North-Western Line, arrives San Francisco afternoon of third day and Los Angeles next morning. No change of cars; all meals in Dining Cars. The Pacific Express leaves 10:30 p. m. daily. Personally conducted excursions every Thursday from Chicago and every Wednesday from New England. Inquire of any ticket agent or address

461 Broadway, New York; 601 Chestnut Street, Philadelphia; 368 Washington Street, Boston; 301 Main Street, Buffalo; 212 Clark Street, Chicago; 435 Vine Street, Cincinnati; 507 Smithfield St., Pittsburg; 234 Superior Street, Cleveland; 17 Campus-Martius, Detroit; 2 King Street, East Toronto, Ont.

LARGEST CAMERA IN THE WORLD



WAS CONSTRUCTED ESPECIALLY
BY ORDER OF THE

CHICAGO & ALTON

RAILWAY, TO PHOTOGRAPH
THE ALTON LIMITED.
SEND A 2C. STAMP TO GEO. J. CHARLTON,
G. P. A., C. & A. RAILWAY, CHICAGO, ILL.,
AND RECEIVE AN ILLUSTRATED PAM-
PHLET WITH FULL ACCOUNT OF THE
FIRST EXPOSURE MADE WITH THE RE-
DRAORDINARY MACHINE.



Steel Balls . . .

BEST IN THE WORLD

Excelsior Machine Company
BUFFALO, N. Y.



BICYCLE DEALERS

THE "NULITE" VAPOR GAS LAMP is no experiment.
Beats any light on earth except the sun, and is almost as cheap.
An unlimited field. Write for Catalogue and particulars.

CHICAGO SOLAR LIGHT CO. : DEPT. 21 : CHICAGO, ILL.



THE ROLLER BEARING

W. S. Rogers (Late Mngr. Ball Bearing Co., of Boston) KEENE, N. H. Vice Pres.

MOTOR VEHICLE BEARINGS

AUTOMOBILES

WHAT ARE THEY AND ?
WHAT WILL THEY DO ?

To complete information, write to the **Motor Age**, Chicago, and a valuable
catalogue of makes of motor vehicles and their parts will be sent.

THE MOTOR AGE

THE AUTOMOBILE AUTHORITY OF AMERICA

324 Dearborn Street, CHICAGO

DE DION-BOUTON
"Motorette"
COMPANY.

Sole American Agents and Licensed Manufacturers for
DE DION-BOUTON & CO., PUTEAUX, FRANCE

DE DION "MOTORETTES"



ARE THE STANDARD OF THE WORLD

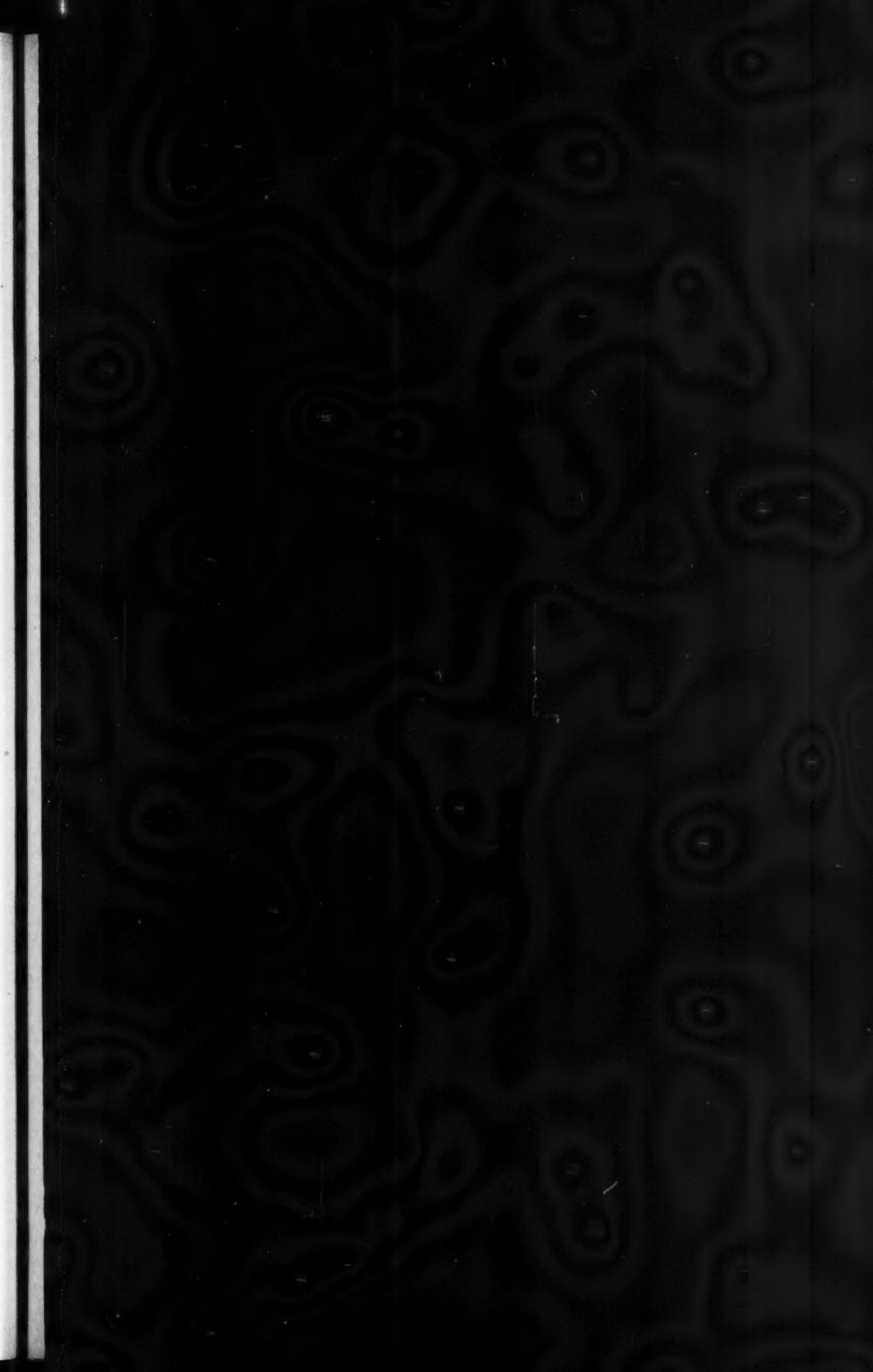
Thousands of Satisfied
Owners say so . . .

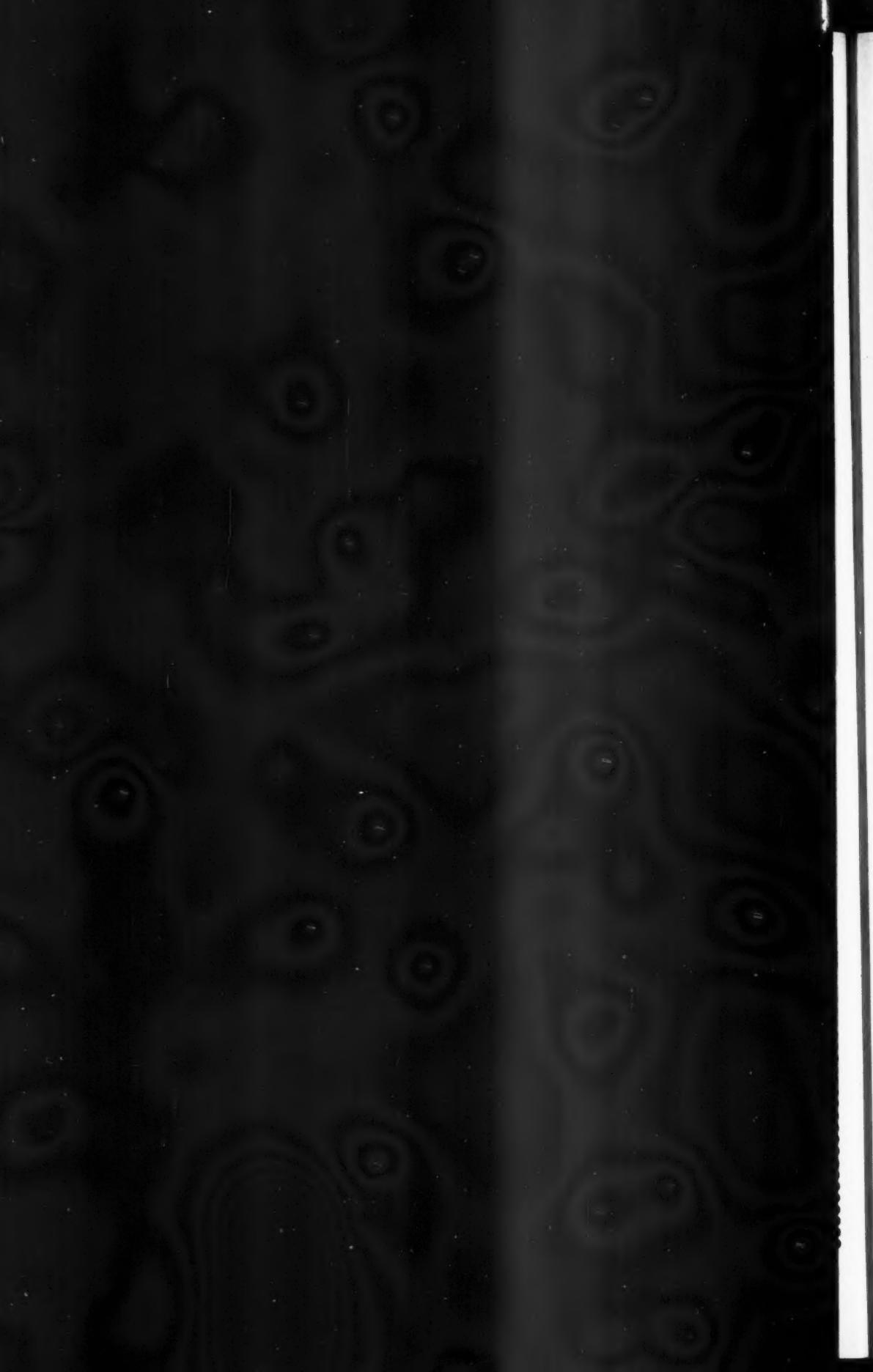
Write for additional proof.

**De Dion-Bouton
Motorette Co.**

Church Lane & 39th St.
Brooklyn, N. Y.

SEE OUR EXHIBIT AT PAN-AMERICAN





Satisfied Subscribers

Are the most valuable endorsement. Motor Age has them because:—

It is a variable bureau of information to the automobilist.

Its columns are open to the discussion of all subjects of interest.

It covers all important developments of sport and trade impartially and in language which is easily understood.

It conducts a bureau which supplies the catalogues of all advertisers to subscribers on request.

It makes known the wants of subscribers to advertisers by means of a weekly bulletin. It is read, from cover to cover, by those who desire to use automobiles intelligently and need information on which they may rely.

Its subscribers are men of ideas, who do not fear to offer them for the benefit of others.

These things mean that Motor Age subscribers are satisfied and that it is a desirable advertising medium.

The annual subscription is \$2.00. We are ready to make a liberal proposition to agents.

THE MOTOR AGE

MONON BUILDING,

CHICAGO

Columbia

Automobiles

ELECTRIC—GASOLINE

In Sixth Year of Successful Service



Mark VIII—Columbia Gasoline Runabout.

Three Finished in Automobile Endurance Test.

Of the three Columbia Gasoline Runabouts, which entered the New York-Buffalo 500-mile endurance contest, all finished at Rochester, where the run was terminated. In the issue of September 19th, the Motor Age says, "The performances of the Columbia carriages were, perhaps, the most remarkable of all.

They went through the ordeal with little trouble, without the everlasting tinkering to which some of the others were subjected. With 4½ horsepower, their performances will prove, when the official figures are ready, to have exceeded those of many others with twice, and in sometimes three times the power."

Other tests of this vehicle sent on application.

Electric Vehicle Company BROADWAY ¹⁰⁰ **New York**

Western Agency and Show Rooms, 267 Wabash Ave., Chicago.